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The next Annual Meeting of the Massachusetts Medical Society will be held in Boston, June 7 and 8, 1932, "unless otherwise ordered by the Council".

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VOLUME 205 SEPTEMBER 24, 1931 NUMBER 13

The Massachusetts Medical Society

SECTION OF SURGERY

Ballroom, Hotel Statler, Wednesday Morning, June 10, 1931, 8:45 O'Clock

SOME OBSERVATIONS ON THE USE OF ROENTGEN RAY IN THE DIAGNOSIS OF SURGICAL DISEASES OF THE CHEST*

BY GEORGE W. HOLMES, M.D.†

IN a symposium such as this, one cannot expect to describe the roentgen findings in the many lesions of a surgical nature which involve the chest. I will, therefore, use the time at my disposal to present some of the more recent advances in the roentgen methods of examining the chest, with a description of the variations from the normal which such an examination may be expected to demonstrate, including a few cases illustrating the value of the method.

The equipment necessary for a satisfactory examination of the chest consists of apparatus capable of delivering a large amount of current at a reasonably high voltage. We are using about 300 ma. at 88 kv.—this amount of energy allows the taking of films at seven foot distance in one-twentieth of a second which is fast enough to eliminate all motion. If the exposure time is longer than this the pulsations of the hilus and of the heart will not be obliterated. Films taken in a tenth of a second are little, if any, better than those taken in a quarter of a second. It is also necessary to have clean, fast intensifying screens, and an accurate timer.

The equipment for making examinations at the bedside must be heavier than the usual portable apparatus, and the ordinary lighting circuit does not deliver sufficient current. It is desirable to have a special circuit in all wards, and apparatus capable of delivering at least 30 ma.

Whenever it is possible to do so the examination should include a fluoroscopic study as well as films. There are many important observations, such as the movements of the diaphragm, the pulsation of masses, and the localization of shadows which cannot be obtained in any other way. Fluoroscopic observations are usually made in the upright position with a relatively short target screen distance. With the apparatus available at the present time bedside fluoroscopy is not sufficiently safe to warrant its adoption as a routine procedure, as it is impossible adequately to protect the patient from high tension shock, or the operator from overexposure to the roentgen rays.

In an examination of the chest some part of the thoracic contents is always a considerable distance from the film, and unless the target film distance is seven feet or more, there will be marked magnification and distortion of these shadows. It is even possible for shadows to be so magnified that their density is the same or less than the surrounding lung, causing them to disappear completely. It is also possible for shadows in the lung to be obscured by the magnified shadow of the heart and great vessels. This, of course, may occur when films are taken at seven foot distance, but it is less likely. The advantage of the seven foot film is that shadows appearing in it are nearer actual size, and are not greatly distorted or magnified.

I believe that the value of stereoscopic films in the diagnosis of surgical lesions in the chest is overestimated. Their principal advantage is that they permit a more detailed study or the localization of small shadows. In the large shadows produced by empyema or lung abscess they are of little value because of the difficulty in comparing the position of the abnormal shadow with the normal shadows of the chest. They do help to separate the superimposed shadows of lung markings or to distinguish calcified glands from blood vessels. In my experience the lateral view has been of much greater value in the localization of large shadows than have the stereoscopic films. In surgical diseases of the chest it is often of greater impor-

*Read before the Section of Surgery of the Massachusetts Medical Society at its annual meeting, Hotel Statler, Boston, June 10, 1931.

†Holmes—Clinical Professor of Roentgenology, Harvard Medical School. For record and address of author see "This Week's Issue", page 648.

tance to demonstrate the presence of a cavity and its position in relation to the chest wall than it is to make a diagnosis of the type of pathology present, as the latter is often evident from the clinical history and physical findings. In attempting to demonstrate a cavity it should be remembered that so long as the cavity is completely filled with secretion the shadow on the film will be that of consolidation, and that in partially filled cavities, films must be taken in such a position that fluid levels will be demonstrated. In the usual anteroposterior view, with the patient prone, it is often impossible to demonstrate a partially filled cavity. Films should be taken with the patient upright or lying on the side, and the best results are usually obtained if the patient has raised a considerable amount of sputum just before the examination. The localization of the lesion is usually best done under fluoroscopic observation by rotating the patient in front of the fluoroscopic screen, in order to demonstrate the position of the lesion in the anteroposterior view, its relation to the thoracic wall, and whether the pleura is involved. A marker can then be placed on the chest indicating the position of the process in the anteroposterior and lateral planes, as well as the point nearest the thoracic wall; this point should be the point of approach if surgically possible.

The use of lipiodol in the bronchial tree has been of very little help in the diagnosis and localization of abscesses. In the early stages before the abscess has ruptured into a bronchus the lipiodol will, of course, not enter it, and will only help to outline the area of consolidation. After the abscess is draining, the appearance of air within the cavity makes the use of lipiodol unnecessary.

The density of the shadow cast by fluid in the pleural space will usually completely obliterate any underlying process in the lung. The x-ray examination will give no evidence of an extensive destructive process in the lung substance when empyema is present. The difference in the density of pus and other fluids is slight, and is not distinguished on the x-ray films. The position and shape of the shadow, however, may be of some importance. Pus is usually encapsulated, whereas the transudates and exudates are usually free in the pleural space. Encapsulated fluids may be seen as rounded, sharply defined areas in the periphery of the lung field, or in the areas along the spine. When they occur between the lobes, they present a narrow band of increased density extending across the chest, when seen in a lateral view, or a general dullness throughout the lower part of one lung field when seen in the anteroposterior view. It is in the differentiation of these shadows from the shadows cast by abscesses or consolidation that the fluoroscopic observation and films taken in the lateral view are of the greatest importance. A collapse of one or more lobes may occur with the accumulation of fluid in the pleural space, and in these cases the usual displacement of the heart and mediastinal contents away from the affected side will not take place, and may lead to a misinterpretation. There is usually little difficulty in distinguishing the collapse following pneumothorax, as the collapsed lung is easily seen. When collapse occurs without pneumothorax, however—the so-called massive or postoperative collapse—the differentiation from pneumonia is often extremely difficult. The signs which are of the greatest value are a high fixed diaphragm and a displacement of the heart and mediastinal contents toward the affected side. The shadow of the collapsed lung itself resembles that of pneumonia very closely. The displacement of the heart is perhaps the most valuable sign as it does not occur in pneumonia and is seen in most cases of collapse, the exceptions being where the collapse does not involve the whole lobe or where it is bilateral.

In following the course of a lung abscess or empyema, either under medical or surgical treatment, the x-ray examination is of considerable value. It permits of records which are free from personal bias and which are more accurate than those obtained by physical examination. In chronic empyemas with discharging sinuses, the presence of cavities within the pleural space can usually be demonstrated by placing the patient in the upright or lateral position. We have rarely found it necessary to inject opaque material into a sinus.

CASE I. (P. H.-8995.) A sixty-two year old normal school principal, while lying on a couch six weeks before admission, was startled by a sudden noise, and jumped; this was followed by persistent pain in her side. Later she took a long automobile ride from which she suffered considerable pain requiring a hypodermic injection by her local physician; this was thought to be an attack of gall stones; in about a week she felt better. Three weeks later she had a wretched cold which increased in severity; the cough was non-productive and occurred in spasms resembling whooping cough. There was no rise of temperature; she was conscious of dyspnea on climbing one long flight of stairs, and on lifting. She was never awakened at night by shortness of breath. Physical examination was negative except for the findings in the lungs; above the angle of the scapula there was an area of dullness to flatness with hyperresonance and moist râles above it; the whole base was dull; breath sounds were diminished but not absent, and spoken voice came through quite normally. She was given a series of treatment with high voltage x-ray, following which there was definite improvement. Six months later she reported for observation, at which time she was entirely well, had gained weight, and the x-ray examination of her chest was negative. Before starting treatment a film taken of her chest showed a large rounded shadow in the right lung field; the shadow was quite dense and its margins fairly sharp; it lay much nearer the back than the front, apparently in contact with the posterior chest wall beneath the

seventh and eighth ribs. The diaphragm was high on the affected side, and the respiratory movements limited. The costophrenic sinus was obliterated. The heart and mediastinal contents were not displaced, and there was no evidence of disease of the bony thorax.

CASE II. (M. G. H.-193956.) A thirty-five year old, well-developed and nourished widowed Polish cook entered the hospital complaining of cough and pain in the back, of two weeks' duration. Two weeks before admission she "caught cold" and developed general malaise, an ache in the left ear, and a cough which was worse at night and productive of a small amount of yellowish sputum which was not foul. She had alternate chilly sensations and sweats, and developed a sharp pain under the right scapula, at times pleural in character; also transient pains in the left side of her chest. She continued to work for a week. A week later she was advised by a local physician to enter the hospital. The day before admission she raised some frankly bloody sputum. For the past two or three

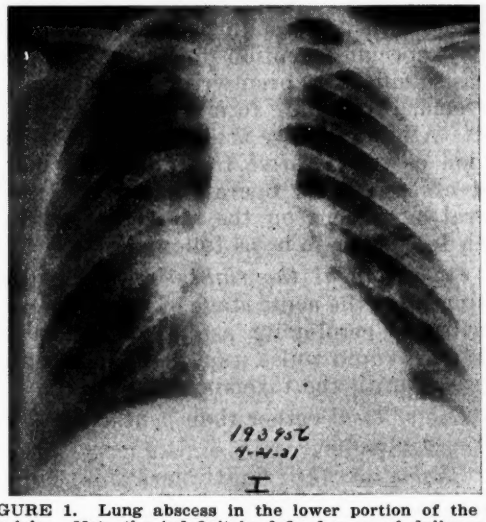

FIGURE 1. Lung abscess in the lower portion of the right upper lobe. Note the indefinitely defined area of dullness near the right lung root with the bright area indicated by the arrow which represents the abscess cavity.

years she had had frequent colds. On physical examination it was noted that there were a few carious teeth. The left chest lagged a little and expanded less than the right; there was slight dullness at the left apex, front and back, with diminished fremitus, roughened breathing and râles after cough; later she developed foul breath. Three examinations of the sputa for tuberculosis were negative; one showed spirochetes. The Hinton was negative. The impressions obtained from the history and physical examination were strongly suggestive of tuberculosis, but the x-ray findings showed an abscess. Repeated physical examinations finally revealed a few râles. No etiology could be ascertained, but the history was limited on account of language difficulties. Bronchoscopic examination revealed a small amount of pus in the right upper lobe bronchus, which was cleaned out. X-ray examination showed an area of dullness at the right lung root which was of a mottled character, with rather indefinitely defined margins extending outward nearly across the chest. In the upper part of the shadow there was a bright spot which suggested a cavity. The remainder of the lung field was clear. The diaphragm was somewhat limited on the right, but was sharply outlined on both sides. The costophrenic angles were clear. The heart shadow was not remarkable. A lateral view localized the process in the posterior aspect of the upper lobe. The x-ray interpretation was lung abscess.

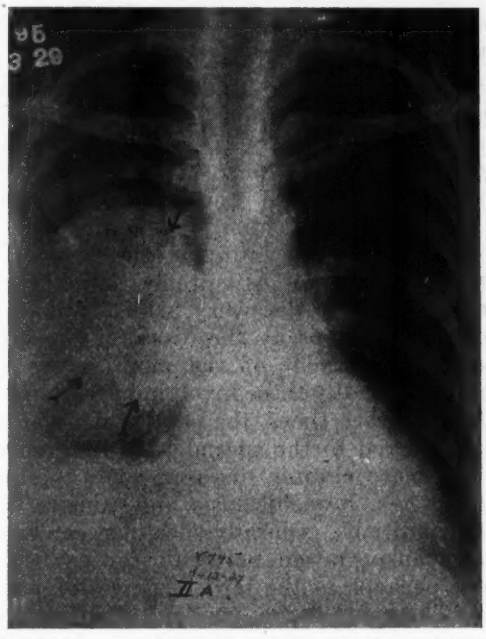

FIGURE 2A. The large dense rounded shadow in the right lung field is due to a mass in the posterior part of the chest as shown in the lateral view, figure 2B.

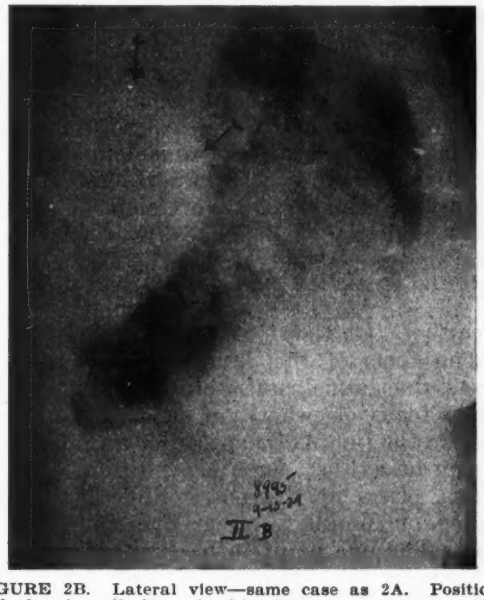

FIGURE 2B. Lateral view—same case as 2A. Position of the shadow is well shown in this view.

SUMMARY

To obtain the best results in a roentgen examination of the chest, especially heavy apparatus is necessary. Whenever possible a fluoroscopic examination should be made in addition to the taking of films. A correct diagnosis often depends on the demonstration of a cavity or shifting fluid level, which usually requires special positions and preparation of the patient.

ACUTE AND TRAUMATIC LESIONS OF THE CHEST*

BY HORACE BINNEY, M.D.†

THE past fifteen or twenty years have seen a surprisingly rapid development of chest surgery as a special branch, compared with other branches. Two factors are, perhaps, chiefly responsible; first, the perfection of methods of anesthesia both local and general, including methods of accomplishing positive pressure, and second, the discovery during the World War that the thorax was as suitable for surgery as other cavities—a discovery which was forced upon war surgeons by the disastrous results of expectant treatment of the more severe chest wounds, especially those involving the lung. Naturally, in peace times, the cases which can wait to be referred to the specialist in lung surgery are the more chronic diseases, such as chronic lung abscess. bronchiectasis and tumors, while acute conditions, generally speaking, can neither stand transportation nor wait for a specialist except perhaps in the larger centres of population. The acute lesion, whether of infectious or traumatic origin, must therefore as a rule be dealt with by the general surgeon. This paper is concerned with the more common acute infections and traumatic lesions such as fall to the hand of the general surgeon.

An attempt to discuss fully the acute lesions, even excluding the pericardium and heart, would far exceed the time at my disposal and I shall therefore limit myself to a consideration of certain commoner and more important features of the subject, namely, acute infections of the chest wall, which can be dismissed in a few words; acute empyema; and traumatic lesions of the lung.

Abscess of the Chest Wall. By far the most common form of this lesion is the subpectoral abscess, due to metastatic blood-stream infection from a focus elsewhere, or perhaps more commonly to the lymphatic spread of an infection in the arm or axilla. Such a condition is usually obvious, offers no diagnostic difficulty, and, if handled on simple surgical principles, is soon cured. The one point to be emphasized is that the incision for drainage of such an abscess, when situated well above the pectoral border, should be across muscle fibres so that the tension of the muscle will tend to keep the drainage tract open, rather than to close it as will occur with an incision parallel to the direction of muscle fibres.

Acute Osteomyelitis of Ribs. Unlike osteomyelitis of the extremities where loss of bone may be ill afforded, in the case of ribs it has been pointed out that radical measures are best (Lilienthal[1]), and that the disease should be excised with a good margin of healthy bone. The incision must be adequate for laying open and packing, or for treatment of the whole area of diseased soft parts as well as bone with the Carrel-Dakin method.

In the case of infection of cartilage, which, like osteomyelitis of rib, is occasionally seen as a complication of typhoid fever, it also pays to be radical (Brewer[2], Moschowitz[3]), and if the fused cartilages are involved (6th to 10th), the whole structure should be removed in order to obtain a prompt healing.

Acute Empyema. Your chairman requested me to include this subject in my paper, but I wish to pay special attention to traumatic lesions, and as so much has been written of late years on empyema, I am going to make my remarks very brief. Although there is still some difference of opinion as to operative technique and management of cases after operation, I think there is general agreement on the important essentials, which I consider to be as follows:

1. *Operation at the right time.* This means waiting until the acute stage of a pneumonia has passed and employing aspiration in dyspneic cases with rapid pulse, especially in streptococcus cases, until the toxemia is subsiding.

2. *Use of local* rather than *general anesthesia,* wherever possible.

3. *Choice of the right place for drainage,* which means the lowest point of the abscess which is at a safe distance from the diaphragm. This is higher in children than in adults. X-ray is the best guide to follow on this point.

TABLE I

RESULTS IN ACUTE EMPYEMA

Method	No. Cases	Mortality	Became Chronic
Open drainage			
B. C. H. 1918-20 incl.	193	20%	?
Closed drainage			
B. C. H. (H. B.) 1928	126	11%	4.7%
Closed suction			
Foster[5] 1929	153	11.1%	0.6%
Tidal irrigation			
Hart[6] 1929	50	10%	0

The reports in recent years show that the most important matter in regard to operation is the choice of the right time to operate. Various authors publish statistics based on different methods of treatment such as "Open" and "Closed" methods, irrigation with Dakin's fluid, "Suction drainage", "Tidal" irrigation,

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etc. As the following table shows, the mortality rate has been improved by use of the closed method, compared with the open method, at least in our series at the Boston City Hospital. The majority of these cases were in adults. As Ladd and Cutler[4] have shown, the open method gives as good results in children as the closed. As to the more elaborate methods, they give about the same mortality rate as simple closed drainage. In the percentage of chronic cases, however, the elaborate methods show an advance.

Classification of Traumatic Lesions of the Chest:

Owing to the great variety of forms of trauma which may affect the chest or its contents, and the number of structures or organs concerned, a classification including all possible combinations of injury would be of burdensome length and hardly practical. As a working basis for the present discussion, a rather broad classification is more useful, and the following is therefore suggested:

I. *Injuries with skin intact,* such as are produced by falls, crushing accidents or blows by objects of great variety in size and nature.

These may result in contusion of the chest wall causing

1) Ecchymoses or hematoma
2) Fractures of
   (a) ribs or sternum
   (b) Separation of cartilage from sternum
3) Concussion or compression of the lung with
   (a) multiple hemorrhages or massive hemorrhagic infiltration
   (b) collapse of lung on injured or non-injured side
   (c) rupture of lung with pneumothorax, hemothorax, or both
   (d) rupture of trachea or large bronchi
   (e) rupture of diaphragm, with intrathoracic displacement of abdominal viscera
4) Traumatic asphyxia
5) Contralateral injury causing
   (a) concussion of opposite lung
   (b) post-traumatic pneumonia

II. *Wounds penetrating the thoracic wall:*

1) Superficial, soft parts only (cutaneous, muscular)
2) Deep
   (a) Compound fracture of ribs
   (b) Penetrating pleura (stab or bullet wounds)
   (c) Penetrating lung or other viscera, causing
       pneumothorax
       hemothorax
       pneumo-hemothorax
       pericardial or mediastinal hemorrhage, etc.

I. *Injuries with skin intact.* Lesions produced by falls or blows from comparatively blunt objects resulting in subcutaneous hemorrhage, fractures of the bony cage, or separation between cartilage and sternum causing no serious pleural or lung damage, are common and therefore well understood. I need not dwell on them except to say that shock may be a prominent feature and to emphasize the importance of most careful examination and close observation in apparently slight injuries to exclude more serious pleural or intrathoracic injury. Those due to automobile accidents, often complicated with other injuries, have a high mortality. Prompt treatment of fractured ribs, usually by strapping of the chest, helps to avoid the possible complications of pneumonia, and later of non-union, excessive callus or pain from pressure upon an intercostal nerve. The latter if it occurs may demand operation.

More severe trauma may of course cause intrathoracic injury. Owing to the elasticity of the ribs, especially in children, there may be no fracture, but more or less serious damage to the pleura or lung may occur, which, according to the nature of the injury, may take the form of hemothorax from simple rupture of the parietal pleura; of concussion, or of compression of the lung. The development of signs of hemothorax without hemoptysis will suggest injury of the parietal pleura. The exploring needle will confirm the diagnosis. As the hemorrhage in these cases is usually slight, no operation is necessary as a rule.

Lung injury either by sudden pressure (concussion) or rupture by the sharp end of a fractured rib will usually cause hemoptysis and some degree of pneumo- or hemothorax or both. If pneumothorax is present, sooner or later signs of emphysema of the chest wall may appear. The initial shock will often demand treatment for several hours and thus tend to delay exact diagnosis by careful physical examination, x-ray, etc., but frequent blood pressure and pulse rate observations, at least every half hour, with noting of the character of the patient's respirations and presence or absence of cyanosis, will avoid dangerous delay in necessary treatment. The pathologic conditions which may give rise to immediate danger are two—hemothorax and tension pneumothorax, about which more will be said later. Even in the presence of shock, the prompt recognition of either of these conditions, and their early treatment, perhaps with the help of blood transfusion, will often mean the saving of a life, when delay would be fatal.

Rupture of the trachea or large bronchi may occur from extreme compression of the anterior chest wall. Such rare injuries give rise to alarming symptoms due to rapidly spreading emphysema in the neck and mediastinum. They are apt to be rapidly fatal, but early incision

of the tense skin and fascia over the trachea has been life-saving.

Rupture of the diaphragm is apt to be the result of trauma to the lower chest or upper abdomen, causing also serious injury to the liver or upper abdominal viscera, depending on the side injured. If on the right, there may be rupture of the liver, with signs of intrathoracic or intra-abdominal hemorrhage, or both; if on the left, the spleen may be ruptured, or the stomach, intestine or spleen may be displaced through the torn diaphragm into the thorax. Following the immediate shock, signs of intestinal obstruction should suggest this lesion. Of the two sides, the injury on the right is likely to be the more serious, owing to the danger of grave hemorrhage. Treatment, to be successful, must be early in most cases, either by abdominal or thoracic operation, or both. The subject of abdominal-thoracic injury, however, is a large one and details can only be hinted at in this paper.

Traumatic Asphyxia is a rare phenomenon and needs no description here. The spectacular appearance of the patient makes the condition self-evident and since there is no treatment applicable to the condition itself but only to complicating lesions, I shall pass on to more important matters.

Contralateral Injury, while common enough in the war wounds caused by high explosives, is rarely seen in the milder injuries of civil life. It usually takes the form of concussion of the lung opposite the injured side, probably by force transmitted through the mediastinum, and results in more or less hemorrhagic infiltration, massive or in patches, and is diagnosed by the physical signs or by x-ray. No special treatment is indicated, but the possibility of post-traumatic pneumonia must be borne in mind.

II. *Penetrating Wounds of the Thoracic Wall* form, generally speaking, a much more serious and important group, containing a much higher percentage of grave injuries than the group previously considered. I shall discuss them under two heads, first, superficial wounds involving skin or muscle, and second, deep wounds causing compound fracture of ribs, or penetrating the pleura or intrathoracic organs.

The superficial chest wound resulting from injury or caused by a sharp object or by a glancing knife or bullet, carries the obvious danger of infection or hemorrhage according to size and depth, and must be treated on general surgical principles. Expectant treatment following a simple sterile dressing, debridement under local or general anesthetic, with primary closure or secondary suture are the possible methods, the proper one to be selected depending on the condition. Although the wound may not have penetrated to the thoracic cavity there must always be the suspicion of, and careful search for, intrathoracic injury such as rupture of the lung by sudden compression. The development of hemothorax alone may occur from a tear of the parietal pleura without actual penetration by a missile. A torn intercostal vessel in case of a much depressed rib fracture may be accompanied by a pleural tear allowing blood to enter the chest. In such a case pneumothorax and hemoptysis would be lacking, so that the source of the hemothorax should suggest itself, and with signs of progressive hemorrhage the need of exploration would be evident.

Bullet and stab wounds of the soft parts are rarely serious, although in the latter variety involving the larger muscles much blood may be lost. The tangential or contour bullet wound, with tunneling beneath skin or muscle and with wound of exit, or lodging of the missile remote from wound of entrance, is well understood and is only referred to as being something of a curiosity. The diagnosis of this injury may be difficult or the signs misleading. An example of this difficulty occurring in my interne days clings in my memory. A despondent young man, wishing to commit suicide, provided himself with a revolver and proceeded to row out to sea from one of our harbors. When well away from shore he stood up in the boat and attempted to shoot himself through the heart. Whether he intended to make assurance doubly sure and combine death by bullet and drowning was never learned, but he would have done so had not an unnoticed fisherman heard the shot, rowed over and rescued the victim. On reaching the hospital he was found to have a wound of entrance near the heart apex, a wound of exit in the back at about the same level, and a line of ecchymosis and tenderness around the left chest between these two points. With the shock resulting from the wound and the immersion, and the evident tunneling of the missile, there seemed to be no need of immediate exploration. Shock treatment followed by expectant treatment was carried out; not until twelve hours later did the patient show signs of stomach injury by vomiting blood. Operation revealed two holes in the stomach and diaphragm, the signs on the chest wall having been caused by contusion when he fell and struck his side against the gunwale of the boat on his way overboard. A somewhat amusing feature of this case of double suicide, as it were, was the attempt of his family to collect insurance for accidental death.

A considerable proportion of serious wounds of the chest are caused by knife or bullet. While wounds by these causes may prove of minor severity, they may have the greatest variety of effects, depending on the circumstances of size, depth, locality in the chest, and force behind them. Occasionally they are rapidly fatal, as

when the heart or great vessels are injured, but as a rule in peace times the mortality is not especially high. In this paper there is no attempt to discuss the later effects of chest wounds, such as the incidence of tuberculosis, but only the immediate conditions concerning us. The effects to be considered are first, the damage to the chest wall, second, that to lung or other intrathoracic structure. The wound of the chest wall will be either closed or open; that is, the pleural cavity will or will not have a communication with the outer world.

Closed Wounds. Since the function of respiration can go on without hindrance by air entering through the wound, whatever may be the intrathoracic damage, the closed wound is less serious at the time of injury than the open wound. If pleura or lung is but slightly injured, there may be no further result than the occurrence of a small hemo- or pneumothorax. As absorption is a matter of a few days if infection is absent, cure is rapid. On the other hand, such an injury may mean a rapidly fatal hemorrhage by penetration of a great vessel, or, by injury of the internal mammary or an intercostal artery, a more slowly progressive but yet a serious hemorrhage if not promptly recognized and checked by operative means.

The second factor of danger in the closed wound is the development of tension pneumothorax. While a moderate degree of pneumothorax may be nature's aid to recovery by causing collapse of the wounded lung and thus checking hemorrhage, close observation immediately following injury is always necessary to detect the signs of a steadily increasing pneumothorax. This may develop in the severely contused or crushed chest as well as in bullet and stab wounds. Its occurrence and mechanism have been emphasized and explained by many writers on the subject, but I am convinced that the condition is not always recognized, nor its danger appreciated. The crux of the matter is whether the edges of the wound in the lung act as a valve, allowing air to escape into the pleural cavity during inspiration, and preventing its escape into the air passages in expiration. If such a valve action be present, the pressure in the pleural cavity will gradually change from the normal negative to positive atmospheric or greater.

As the pressure increases the effect will not only be exerted on the wounded lung, causing steadily increasing collapse, but will cause the mediastinum and heart to be pushed over to the uninjured side, the great vessels to be narrowed, and finally the uninjured lung to be compressed. The result is a progressive embarrassment of circulation and respiration, finally amounting to a stoppage of both, with death by asphyxia as the result.

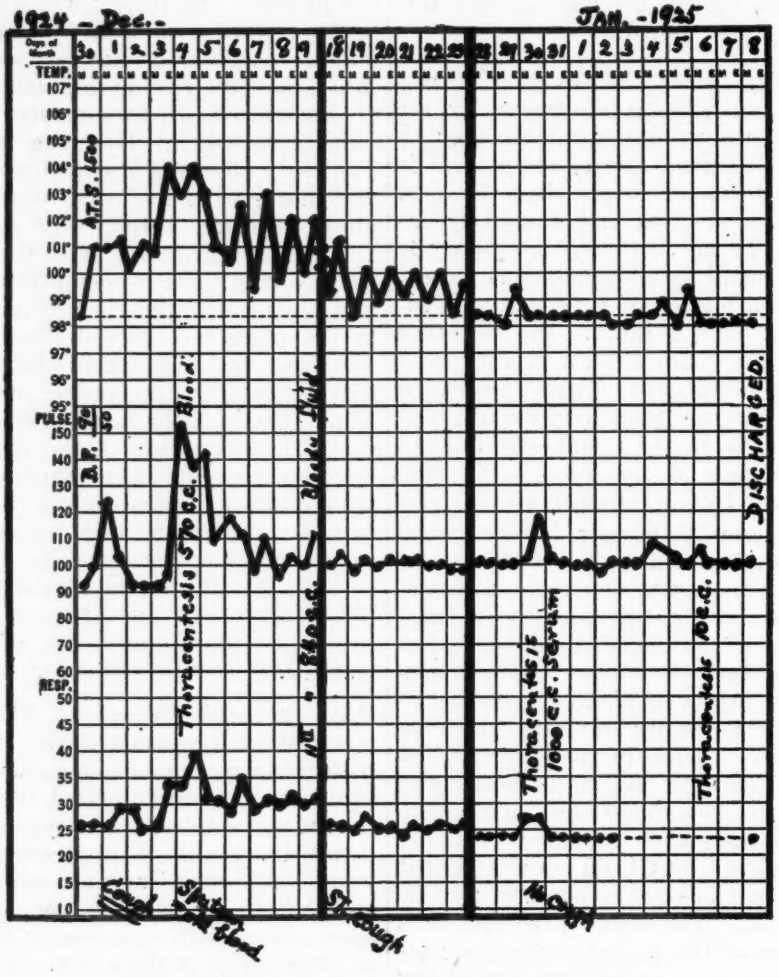
Such a condition may actually form a vicious circle; the more the tension, the greater the dyspnea and therefore the greater the amount of air forced through the valve-like wound, which, in turn, steadily raises the tension until the respiratory muscles become exhausted or anoxemia occurs. The presence of emphysema, the third common feature of these injuries, which also will probably spread and cause increasing tension of the chest wall, may obscure the picture. An injury which in the first hour or two, when symptoms of shock are present, may have appeared relatively slight, will change into a most distressing and dangerous condition. If recognized, it fortunately can usually be quickly remedied. How can it be recognized? The early effects of a closed wound of the lung are shock, with its usual signs of pallor, low blood pressure, a relatively slow feeble pulse, and quiet respiration. With the conditions present favoring tension-pneumothorax, the increasingly labored respiration, cyanosis and increase in the pulse rate should demand repeated observations by auscultation and percussion which will indicate the increasing pneumothorax and displacement of the heart toward the uninjured side. Thoracentesis of the injured pleura allowing the escape of the confined air is all that is necessary for immediate relief. With the return to a more normal respiration, the lung wound may become closed by blood clot or adhesions, but if not, and recurrence of tension threatens, open operation on the lung with suture of the wound will, of course, be demanded.

Open or Sucking Wounds. The common occurrence of such wounds during the World War, with its large number of chest wounds by high explosives, has familiarized the present generation of surgeons with this type of wound and no detailed account of it is needed. The chest wounds of peace times are seldom in this class, as the knife or bullet is not likely to cause an open pleura, but occasionally a shotgun wound at close range is the cause. Many years ago a friend of the writer received such a wound by a wagon shaft being driven into his chest while he was riding on the front seat of a street car which collided head-on with the wagon. Prompt surgery saved his life. The surgeon was the late Dr. Bryant of New York.

A sucking wound, as is well known, demands immediate closure, either by plugging with sterile gauze or by deep through and through sutures in the chest wall, if necessary around the adjacent ribs. This converts the injury into a much less dangerous closed wound which can then be treated as indicated above, according to the conditions present.

Treatment of Hemothorax. With signs of active bleeding, the so-called massive hemorrhage will

demand exploration and control by ligature or suture; this is rather exceptional in civil surgery. Sauerbruch[7] reported four cases of successful ligation of pulmonary vessels. More commonly the bleeding stops for reasons already mentioned, and a moderate degree of hemothorax remains, the blood becoming mixed with serous exudate from the pleura, and remaining unclotted for days. Unless of very small amount, it should be removed for two reasons: first, infection may occur, causing empyema, and second, eventually, even if sterile, the clotted portion fails to absorb, becomes deposited on the lung surface and leads to crippling adhesions. Often it is safe to wait for three or four days before aspirating, when 400 to 600 c.c. can be removed, usually with relief of dyspnea and a lessening of the fever which also is a frequent symptom. The exact time for aspiration and the amount of blood to be removed are often matters of individual judgment.



Diagnosis: Bullet wound of chest. (Typical case.) Complications: Hemothorax.

In connection with aspiration of hemothorax there are two modern therapeutic procedures which are worthy of mention. The first is the matter of air replacement for the fluid removed, advocated so strongly by Morelli and others during the War, in chest wounds, and also in the treatment of empyema. The object is to prevent recurrence of hemorrhage from the wounded lung after removal of a quantity of blood. According to Bastianelli[8], the replaced air, although of an equal volume to the withdrawn fluid, will maintain sufficient pressure on the wounded lung to prevent bleeding, but owing to its elasticity will relieve pressure on the mediastinum and lessen dyspnea. The statistics of results in cases so treated by him during the War are certainly impressive.

The second procedure is that of reinfusing the aspirated blood into the patient's vein, thus preventing its being wasted. This has recently been practiced successfully in three cases of chest injury by Brown and Debenham[9] of San Francisco. Owing to the fluid state of the blood it can easily be collected in sterile receptacles, filtered to remove any minute coagula, and, even without citration, reinfused with perfect safety. The authors point out, however, that blood which is too old is likely to have become hemolyzed and will cause reactions. It should

therefore be examined microscopically to ensure the normal character of the red cells before reinfusion.

Removal of Foreign Bodies. This is a separate chapter of the subject and I must therefore dismiss it with mere mention of the fact that while small missiles can often be left permanently with safety, larger ones, owing to the danger of infection and resultant empyema or lung abscess, should usually be removed from the lung, as a rule not before fourteen days.

Infection may arise and become a serious complication within a few days following the injury, or after several weeks, depending upon the circumstances and character of the injury. Cultures of blood aspirated will give warning of the development of empyema. When present it is best treated by a sufficiently wide opening of the chest to remove all clots, followed by closed drainage, if possible. Lung abscess occurs less often. Fortunately these complications are not common in the chest injuries of civil life.

Results: The most recent report on any considerable number of these injuries is by Allen[10] of St. Louis, who collected 162 cases of penetrating wounds of the pleural cavity. Of these, 47 were stab wounds, of which 40 recovered. The seven fatal cases were ones involving the heart or abdominal viscera. The uncomplicated stab wounds of pleura or lung all recovered.

There were 115 gunshot wounds with 27 deaths, two immediately from severe hemorrhage, three later from infection of pleura or lung, 22 from associated injury of abdomen, spinal cord or brain.

The mortality in the simple chest cases was but 5.3%. In the whole series the occurrence of hemothorax was 26%. In the 115 gunshot wounds, bullets were removed in but 21 cases, in 15 from the chest wall, and in six from the lung, none before 14 days after injury.

TABLE II

BOSTON CITY HOSPITAL
CHEST INJURIES

Crush of Chest—1918 to 1930
(Multiple ribs, compound fractures of long bones, fractured skull, etc.)
40 cases { Died 37 = 92%
{ Recovered 3

Fractured Ribs (uncomplicated)—1926-1930)
(Except Lung injury *Emphysema*)
23 cases { Died 8 = 34.8%
{ Recovered 15

Stab Wounds—1916-1930
24 cases { Died 1 (Wd. of Abdomen) = 4.1%
{ Recovered 23
Two hemothorax? (not aspirated)

Gunshot Wounds—1916-1930
88 cases { Died 11 = 12.5%
{ Recovered 77
(16 hemothorax)

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THE WORK OF THE SECTION OF SURGERY OF THE MASSACHUSETTS MEDICAL SOCIETY AND THE MEN WHO DID IT*

BY FRED B. LUND, M.D.†

A BRIEF review of the proceedings of the Surgical Section of the Massachusetts Medical Society, since its first meeting in 1889, is both appropriate to the occasion of the one hundred and fiftieth anniversary of our parent Society, and interesting as illustrating the enormous advances in the science and art of surgery during the last forty-two years, years in which the surgical art has progressed more perhaps than in the preceding twenty-five hundred years, or since the time of Hippocrates.

In 1889, when the first meeting of the Section took place, anesthesia was, as we know, limited to the use of ether and chloroform, and methods of administration were crude, as compared to those of the present day. Antisepsis was in its early stages of development, asepsis had not come in, and the invasion of the great cavities of the body was still tentative and limited to a few simple procedures. The surgery of the stomach and even of the gall bladder were unknown, or in their very beginnings. Intestinal surgery was crude and attended by a high mortality. To older men who have lived since the first hesitating beginnings in these fields, a review of the work of the section brings back the memory of the struggles and triumphs of those heroes of our youth who had their part in broad-

*Address before the Section of Surgery of the Massachusetts Medical Society at its annual meeting, Hotel Statler, Boston, June 10, 1931.

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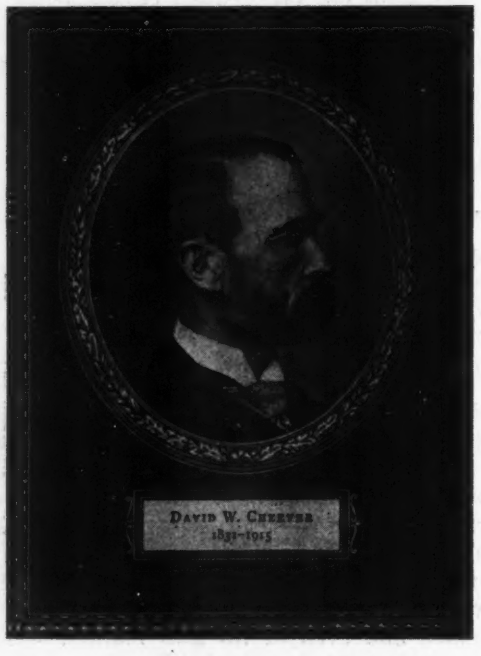
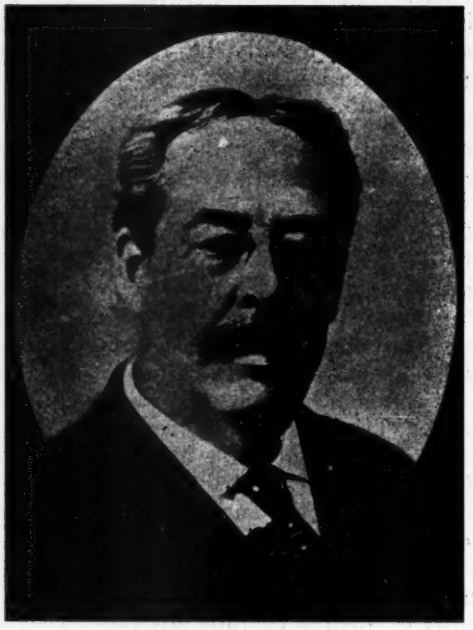
ening and deepening the scope of our art. The younger men, not familiar with their fine personalities, may not be uninterested in a brief review of the work which the older men have been privileged to live through and take part in.

The surgical section was probably organized because the progress of the then modern surgery necessitated meetings of surgeons to discuss the problems peculiar to their own expanding art. The New York Surgical Society and the American Surgical Association had been founded only eight years before, and, even at the time of the founding of our Section in 1889, few of the leaders in surgery abstained entirely from what is called family practice. It has been my privilege to review the work of the American Surgical Association and the New York Surgical Society on the occasion of their fiftieth anniversaries. To attempt even a brief epitome of the work of our Section, the work of the leaders in surgery in our own State of Massachusetts, men whom we knew well as men as well as surgeons, as characters as well as names, is an even more congenial task. Would that time would let me tell the personal story of some of these men, but as that is impossible, we must be contented with such brief flashes of light upon their times and characters as their work in the Surgical Section can show us.

The first meeting of the Section was held in 1889 under the presidency of Dr. David W. Cheever, our professor of surgery when I was



in the medical school. Tall, thin, dignified, a master of logical thought and of the English language, he was a surgeon who combined courage and caution, and had contributed through both these qualities much to our art. The subject of the meeting was Aseptic and Antiseptic Surgery, and the leading paper was by H. L. Burrell, M.D., and Greenleaf R. Tucker, S.B. They advocated the use of baked gauze and baked gauze sponges. Some of us can still remember the charred and brittle and blackened gauze that used to come out of the old battered cans at the City Hospital before the modern pressure sterilizer replaced them. However, the



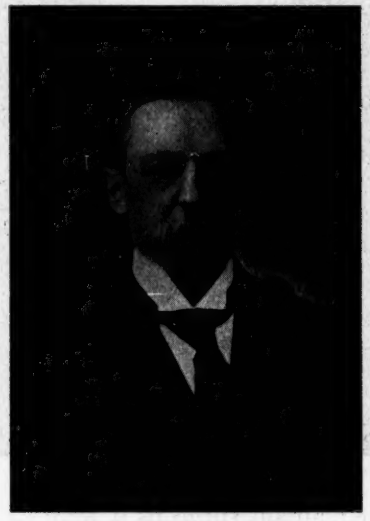
H. L. BURRELL.

baking of gauze was better than boiling it, before the Arnold Sterilizers came. These were installed in the Massachusetts General Hospital about 1891. An amusing plea was made by Dr. S. W. Torrey of Beverly, an eminent and respected practitioner of the day for "relaxation of the rules of antisepsis in favor of those who do not practice in hospitals".

In 1890, Hernia was the subject of debate. In those days operations for hernia were something of a novelty, and McEwen's, McBurney's, and other methods were under discussion. Dr. H. W. Cushing presented An Operation for Irreducible Femoral Hernia. Dr. Charles W. Powers came on from New York and presented a beautifully illustrated paper on Kocher's Method in Dislocations of the Shoulder. Dr. Powers, who was then a very young man, afterwards went to Denver, practiced there all his life, attained eminence in his profession, was president of the American Surgical Association and gave distinguished service in France throughout the World War. I remember that as a medical student drafted to do shack work at the meeting, I had the great honor of hanging up his diagrams so that they could be well displayed. This, the second meeting of the Surgical Section, was the first one that I attended.

In 1891, Dr. J. C. Warren was in the chair.

He was our Professor of Surgery in succession to Dr. Cheever, an aristocrat of an old and honored family in our profession, a profound student of Surgical Pathology and Bacteriology, who wrote one of the first textbooks of Surgical Pathology when I was a young man, and who, after his retirement, in association with Dr. H. P. Bowditch, secured the money for the present Harvard Medical School buildings and the

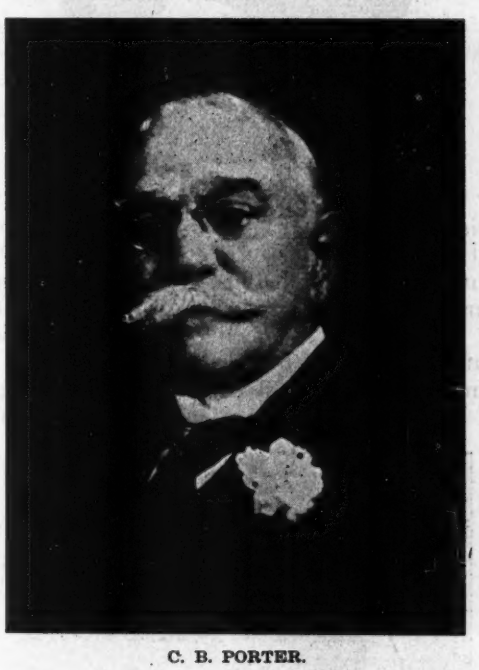


JOHN COLLINS WARREN.

Huntington Hospital. He was a most amiable gentleman to boot, and an accomplished figure skater even up to his later years.

The subject of this meeting was the Diagnosis and Treatment of Inflammation of the Appendix, —a most interesting meeting, which I remember well. The attitude of the leading surgeons is of interest. Dr. Cheever had had a larger percentage of deaths in the operated than the non-operated cases. He said, "It is impossible to drain the peritoneal cavity." Dr. Homans stated that "the treatment has been actually discussed for about five years". Dr. John Homans was the pioneer in this section in ovariotomy. He had to do his first operations at the Carney Hospital because the Massachusetts General had a rule against opening the abdomen. He persisted in spite of early discouragements. He was honest to a fault, and he was often called "honest John". He was one of the first to carry out Listerian antisepsis, and those of his assistants who are living have memories, which are not exactly tender, of the spray and of pinching their fingers in the clothes wringer with which he had the sea sponges wrung out during the operation. The proceedings of the American Surgical Association show that his advocacy of antisepsis and his reputation for honesty had much to do with the acceptance of asepsis in this country. His was a picturesque and emphatic, but most lovable personality. Dr. R. H. Fitz suggested operating between the attacks. Dr. C. B. Porter had had three successful interval cases and had collected fifteen cases, including his own, all of which had recovered. It took some courage even in those days to do an interval appendix. Dr. Porter was our Professor of Surgery when I was in the School. He was a brilliant operator of the anatomical school, an excellent and painstaking teacher, most active and thorough in his hospital and private work. Either in that meeting or another at about that time Dr. Alfred Worcester made an eloquent plea for early operation, in which he said, "Waiting for the attack to quiet down may be all right for you city surgeons, but out in the country we can't stand the sight of the gravestones of our patients when we drive past the cemetery on moonlight nights."

In 1892, Dr. C. B. Porter was president and that prince of New York surgeons, Dr. Arpad G. Gerster, spoke on Strangulated Hernia.



C. B. PORTER.

In 1895, the subject was Prostatic Hypertrophy. Dr. Francis S. Watson read an able and beautifully illustrated paper on The Operative Treatment of Prostatic Hypertrophy. He was one of the pioneers in the introduction of this treatment, and a most original and brilliant contributor to various subjects in genito-urinary surgery. I cannot praise him as I would like because he is still alive and well. Those who were his associates at the City Hospital and elsewhere cherish the memories of their work with him as among the pleasantest of their lives. Dr. A. T. Cabot discussed the Palliative Treatment of Prostatic Hypertrophy.

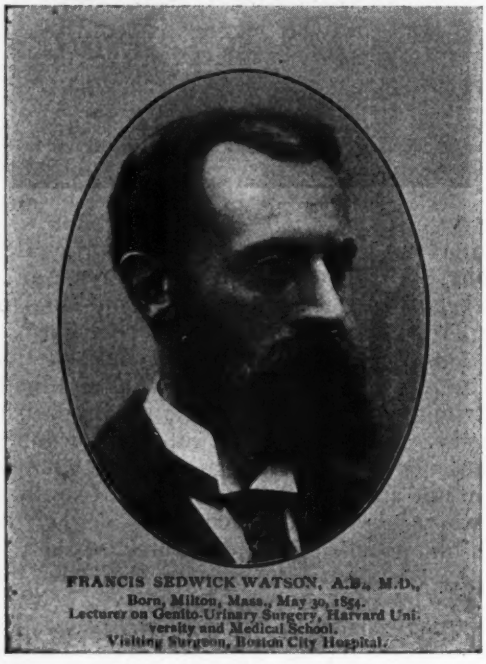
In 1898, Dr. E. H. Nichols, Professor of Surgery in the Harvard Medical School, a thorough surgical pathologist, brilliant diagnostician and able teacher, who established the tradition of the proper care of athletes in the course of his

long service as surgeon to the Harvard football team, spoke on the Pathology of Certain Diseases of the Bones and Joints, and Dr. J. C. Warren contributed a Discussion of the Curability of Cancer of the Breast, in which he advocated the

ARPAD G. GERSTER.

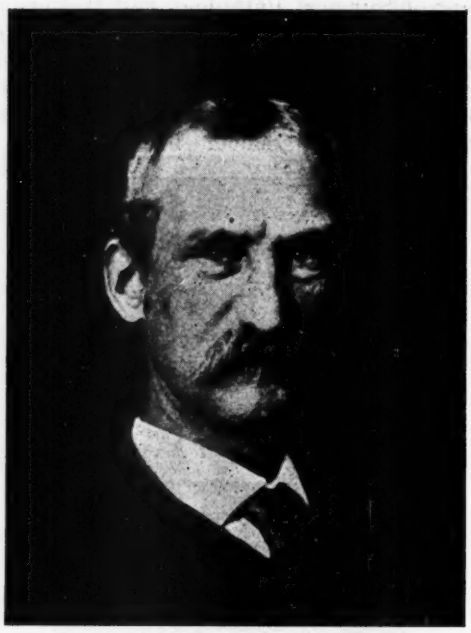
radical operation. The reader of this account contributed a paper on Tetanus and Its Treatment. We were then using enormous doses, a quart or so, of immunized horse serum, and did not know much about it, but some of the patients got better.

In 1899, that brilliant and skilful surgeon, Dr. John C. Munro, read a paper on Intussus-



FRANCIS SEDWICK WATSON, A.B., M.D.,
Born, Milton, Mass., May 30, 1854.
Lecturer on Genito-Urinary Surgery, Harvard University and Medical School.
Visiting Surgeon, Boston City Hospital.

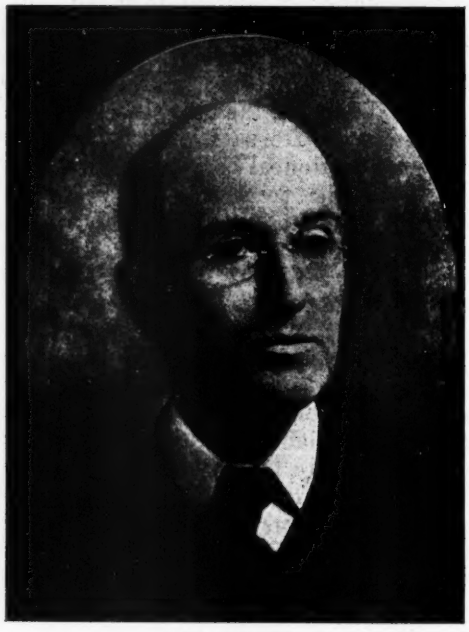
ception, and Dr. M. H. Richardson reported The Completed History of a Case of Gastrectomy, with remarks on the Surgery of Gastric Cancer. The memory of Drs. Richardson and Munro is too fresh in the minds of most of us to make it necessary for me to say much about them. Two finer and more generous men and



A. T. CABOT.

two more brilliant surgeons it were hard to find in our history.

In 1900, Dr. Walter P. Bowers of Clinton was president of the Section and Dr. Franklin G. Balch was secretary. Dr. Francis B. Harrington read a thorough paper on Embolic Gangrene.

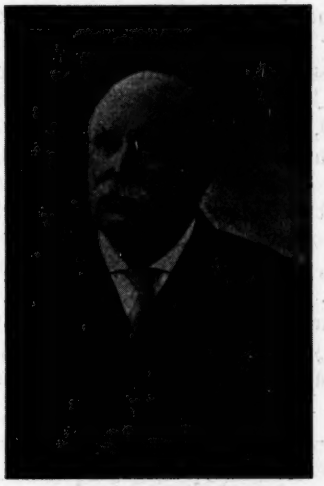


J. C. MUNRO.

Dr. C. B. Porter reported his brilliant and successful operation for suppurative pericarditis, Dr. Charles H. Hare spoke on the Treatment of Retro-displacement of the Uterus, Dr. Walter L. Burrage on the Treatment of Pro-

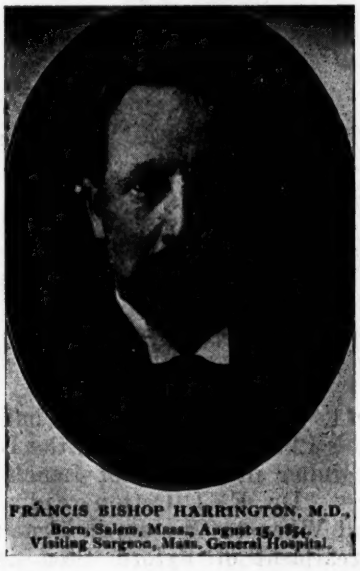
lapse of the Uterus. It is interesting to note that if these papers by Hare and Burrage were to be read now, they might adorn the Section in Gynecology and Obstetrics.

In 1901, Dr. Theodore Dunham of New York



MAURICE HOWE RICHARDSON.

spoke on Stricture of the Esophagus, Dr. A. T. Cabot on Gastric Ulcer. Many of us remember Dr. Cabot as a thorough, careful and consci-



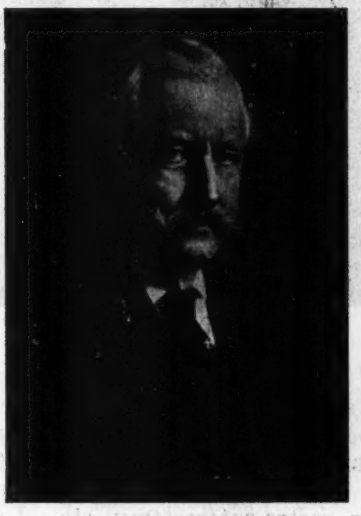
FRANCIS BISHOP HARRINGTON, M.D.,
Born, Salem, Mass., August 15, 1854.
Visiting Surgeon, Mass. General Hospital.

entious surgeon at the Massachusetts General and Children's Hospitals. He contributed much sound sense to surgery in this vicinity. He expressed clearly and forcibly what he had to say. His friendship for Dr. M. H. Richardson was one of the finest that has come under our observation. Dr. Richardson did an exploratory laparotomy on Dr. Cabot, found an inoperable carcinoma, and then died (of cerebral hemorrhage) before Dr. Cabot died.

Dr. W. M. Conant spoke on Gastric Cancer, your humble servant on Intestinal Cancer, and Dr. H. O. Marcy on Obstructive Disease of the Liver.

In 1902, Dr. H. L. Burrell was Chairman of the Section. There was a symposium on head injuries in which Dr. T. J. Robinson of Taunton, Dr. Edwin Dwight of Boston, Dr. W. L. Bullard, that picturesque and eminent neurologist, who has contributed so very many and expensive incunabula to our Medical Library, took part, speaking on the Indication for Operations in Head Injuries. Major Louis a La Garde of the United States Army spoke on Gunshot Wounds of the Head, and Dr. C. L. Scudder on the Technique and After Care of Operations on the Cranium.

In 1903, we heard from Dr. H. G. Stetson of Greenfield, now the Senior of our delegation to the American Medical Association, on Rupture of the Quadriceps Extensor Tendon, and Dr. S. J. Mixter read a Summary of the Surgery

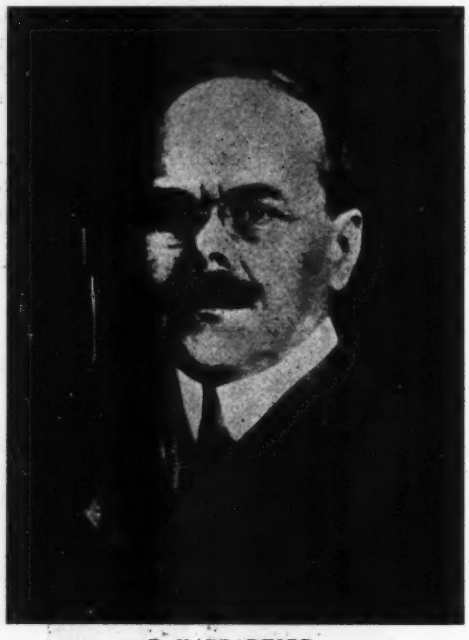


SAMUEL J. MIXTER.

of the Oesophagus. We older men remember well Dr. Mixter's ingenuity in devising and carrying out measures for the relief of strictures of the esophagus, both benign and malignant. His memory is too recent for us to say much about his brilliance, inventiveness, technical skill and thorough sportsmanship. Dr. Paul Thorndike spoke on the Present Status of the Surgery of the Prostate Gland, and Dr. Frank Harrington on Cancer of the Intestine—Its Surgical Aspect.

In 1904, Dr. Frank B. Harrington was our president. We remember him as a thoughtful surgeon who took most excellent care of his patients and whose early work in general practice enhanced his usefulness as a surgeon. Dr. E. H. Bradford spoke on the Treatment of Lateral Curvature. The life and character of Dr. Brad-

ford will not soon be forgotten by this Society. The founder of Orthopedic Surgery in this state and of the Children's Hospital, Dean of the Harvard Medical School, carrying on with indomitable courage when blindness overtook him, author of a textbook of the first rank, gentleman and scholar, he left a deep impress on the surgery of our state and our country. Dr. John Munro, of whom we have spoken above, read at this meeting on Gastric Surgery, with Re-



E. H. BRADFORD.

port of Cases, which may be said to have put gastric surgery on the map in this community. He reported eleven exploratory operations for malignant disease, twenty-two attempts at operation for relief of cancer, one pylorectomy, anterior gastro-enterostomy, etc. Under ulcer, he reported seven cases of operation for perforation, one pyloroplasty, three partial gastrectomies with two deaths, twenty-four satisfactory cases of gastro-enterostomy and twenty-two unsatisfactory cases, jejunostomies, etc.

In 1905, under the presidency of Dr. George H. Monks we heard from Dr. E. C. Durant of Haverhill on What the Suburban Surgeon is doing in the Abdomen, and Dr. F. J. Cotton on Causes of Disability after Fractures of the Lower Leg and Ankle.

In 1906, Dr. M. H. Richardson spoke on the Diseases of the Bile Passages, including the Liver, Gall Bladder and Pancreas. This is the first paper on this important subject that I find in our records.

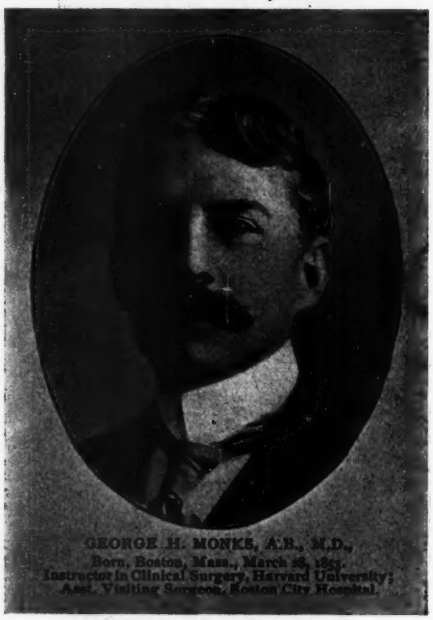
In 1907, Dr. C. L. Scudder read on Stenosis of the Pylorus in Infancy, for which he had done many gastro-enterostomies with excellent results.

In 1908, Dr. Homer Gage was Chairman of the Section. Dr. F. J. Cotton read on the Treatment of Fractures by the X-ray, and Dr. E. A. Codman presented his original and important work on Stiff and Painful Shoulders, Subdeltoid or Subacromial Bursitis.

The next year, 1909, Dr. Codman spoke on the Diagnosis of Ulcer of the Duodenum and Dr. Garry deN. Hough of New Bedford on Pain, Tenderness and Hyperalgesia in the Diagnosis of Some Common Abdominal Diseases.

In 1910, Dr. C. A. Porter spoke on the Surgical Treatment of Exophthalmic Goitre, and Dr. J. C. Hubbard on Some Surgical Observations on the Vascular System. Both of these papers were important contributions.

In 1911, we had a symposium on Anesthesia in which Dr. Freeman Allen, who was the first to devote himself exclusively to anesthesia in this community, spoke on Local, Spinal and General Anesthesia. Drs. Quinby and Ehrenfried read papers on Intratracheal Anesthesia.



GEORGE H. MONKS, A.B., M.D.,
Born, Boston, Mass., March 26, 1851.
Instructor in Clinical Surgery, Harvard University;
Asst. Visiting Surgeon, Boston City Hospital.

In 1911, your humble servant had begun to use Lane's Plates, and reported the Experiences of a Beginner in the use of Lane's Plates in Fractures. Dr. F. J. Cotton read a paper on Why and When to Operate in Fractures; Surgical Treatment of Pyloric Stenosis was discussed by S. W. Goddard, and we had also a Symposium on Renal Tuberculosis, in which Drs. Chute, Paul Thorndike, Hugh Cabot and Binney took part. In such a meeting as this, one can readily see the progress that has been made in the twenty-two years since the founding of the Society.

In 1912, Dr. Ransohoff of Cincinnati spoke on Surgical Aspects of Intestinal Adhesions and Ptosis, a subject which was then agitating the surgical world, and Dr. John Homans spoke on the Surgical Treatment of Head Injuries

Affecting the Brain, and Dr. John T. Bottomley on Traumatic Lesions of the Spinal Cord.

In 1914 occurred a notable symposium on Cancer, in which the participants were Dr. Farrar Cobb, Dr. Daniel F. Jones, Dr. A. L. Chute and others; the subjects were Cancer of the Uterus, Rectum, Bladder and Prostate. Dr. Cobb advocated the Wertheim hysterectomy and reported cases.

In 1915, the symposium was on Empyema. Dr. Lord spoke on the Medical Aspects, Dr. Percy Brown on the X-ray in Diagnosis, Dr. Cotton on the Pneumodynamics of Empyema, and Dr. Lund on the Treatment of Chronic Empyema by Decortication of the Lung.

In 1916, Dr. Harvey Cushing honored us with a paper on Fracture of the Base of the Skull, as the first paper on a notable symposium on fractures. Among the other papers was a paper by Dr. David Cheever on Aspects of the Treatment of Compound Fractures under Civil and Military Conditions. This is the first paper which reminds us that a war of considerable importance was in progress. There was also a notable symposium on Goitre, in which the participants were C. H. Porter, Walter B. Cannon, Walter M. Boothby and Frank H. Lahey. Dr. Lahey brought out the use of morphine and scopolamin in the anesthesia of goitre.

In 1917, Results of Radium Treatment of Cancer in the Huntington Hospital, and The Diagnosis of Pathological Gall Bladder by the Roentgen Ray were given by Drs. A. W. George and R. D. Leonard.

In 1918, we had another war paper, this time by our president of this year, Dr. Moore, on the Suspension Treatment of Fractures in Base Hospital Work and Their Application in Civil Practice. Dr. C. A. Porter spoke on Tetanus in War, Progress in Prevention and Treatment; Major Homer Gage of Worcester on Empyema and its Treatment in Military Cantonments, and Moving Pictures of the Application of Standard Splints in Trench and Front Line Dressings were shown and discussed by Major Kendall Emerson.

In 1919 and 1920 respectively the late Dr. H. A. Lothrop and Dr. R. B. Greenough, the present president of the Society, were chairmen of the Sections. Among the subjects considered were The Use of X-ray in the Differential Diagnosis of Common Brain Lesions, and the Accurate Diagnosis of Injuries of the Atlas and Axis by Dr. Arial W. George; Multiple Resections of the Small Intestine by Dr. E. L. Hunt of Worcester, Results of Cholecystectomy, with especial reference to Dilatation of the Common Duct by Dr. John Homans, and Acute Intestinal Obstruction by Dr. Edward P. Richardson.

In 1921, the American Medical Association held its meeting in Boston and in consequence there was no meeting of the Surgical Section.

In 1922, Dr. J. C. Hubbard presided. Dr. Peirce H. Leavitt spoke on Tuberculosis of the Breast, and Dr. Donald Macomber on the Etiology of Sterile Marriages; Dr. Michael F. Fallon on Heritage and the Reckoning of a Surgeon.

In 1923, the Society met at Pittsfield. The Section listened to papers on Acute Perforations of the Stomach by Dr. C. L. Gibson of New York, and Ectopic Gestation by the late Dr. Polak of the same city. The chairman of the Section was Dr. John B. Thomas of Pittsfield.

In 1924, the Society met at Swampscott. Everett L. Hunt of Worcester was chairman, and Drs. Jones, McKittrick and Sisco spoke on the Surgical Treatment of Gall Bladder Disease in Diabetics, and Dr. W. Russell MacAusland on the Treatment of Anchylosis by Arthroplasty.

In 1925, Dr. John M. Birnie, afterwards president of our Society, spoke on Procidentia Uteri, and Dr. Oswald Lowsley of New York City on Major Urological Operations under Local Anesthesia.

In 1926, the meeting was at Springfield under the chairmanship of Dr. John M. Birnie. A notable symposium on Peptic Ulcer was held, in which Dr. Frank H. Lahey spoke on the General Management of Peptic Ulcer, Dr. Franklin W. White on the Medical Aspects, and Dr. Albert A. Berg of New York on the Surgical Aspects of this disease. A résumé by Dr. Charles H. Mayo closed the discussion.

In 1927, in Boston, Dr. Charles G. Mixter was president and a memorable symposium on the Acute Surgical Abdomen was held. Dr. Peer P. Johnson spoke on Acute Surgical Lesions of the Lower Abdomen, Dr. Edward P. Richardson on Acute Surgical Lesions of the Upper Abdomen, Dr. Kendall Emerson, on Traumatic Lesions of the Abdomen. Intestinal Obstruction was discussed by Allen O. Whipple of New York, and a General Résumé was given by Dr. John H. Gibbon of Philadelphia.

In 1928, at Worcester, Dr. Frederick B. Sweet presided and there was another excellent symposium on the Surgery of the Gall Bladder, opened by Dr. John F. Erdmann of New York, and including papers on the Surgery of the Bile Ducts by Frank H. Lahey, Sequelae and Accidents of Biliary Surgery by Dr. Edward Starr Judd of Rochester, and Pancreatic Complications of Biliary Disease by Dr. Daniel F. Jones.

In 1929, Dr. Truesdale of Fall River was chairman, and there were notable papers on the choice of Anesthesia by Dr. Lincoln F. Sise, and on Postoperative Treatment by Dr. Eugene H. Pool of New York, and on Medical Coöperation in the Management of the Surgical Case by Dr. William Mason of Fall River.

In 1930, at Plymouth, Dr. I. J. Walker presided. An extremely interesting symposium was held on Cancer of the Colon, Dr. L. B. Mor-

rison speaking on the Rôle of the X-ray in the Diagnosis of Cancer of the Colon, Dr. E. P. Richardson on the Diagnosis and Principles of Treatment of Cancer of the Colon, Dr. Daniel F. Jones on the Relation of Diverticulitis to Cancer of the Colon, and Dr. David Cheever on the Results of Treatment.

In writing this brief résumé of the work of the Surgical Section during the forty-two years of its existence, your historian must apologize, and plead the lack of time and space for the omission of much that is important, and ask the pardon of many authors of excellent contributions for not making mention of their work. In particular, nothing has been said of many of the interesting discussions which have taken place, and have been characterized by candor, honesty, and, so far as possible, adherence to scientific truth. In making the résumé the author has found a real interest in reviewing the work of the sections, which seems to him to exemplify and illustrate the enormous progress in surgery which has taken place in this brief space of time. And so like the catalogue of ships in Homer, although it may be monotonous, it still may interest the older members who have taken part in the work themselves, and perhaps the younger men who now are taking over the work, and for those who are in the future to succeed them:

> To you with failing hands we throw
> The Torch, be yours to hold it high.

DR. LUND: *Gentlemen*—I have great pleasure in introducing the next speaker. In 1910 I was a member of the Society of Clinical Surgery, and went to England, to Newcastle-upon-Tyne. We saw a succession of cases shown by Rutherford Morison. He had a young assistant at that time, Mr. George Grey Turner, who displayed to us a large and helpful series of cancers of the intestine and kidney. We were interested in the character of his work. Since that time he has been working along in Newcastle-upon-Tyne, and has come to this country to deliver to us the Murphy Oration on Surgery. He has given a long and glorious War service in Egypt, "Mespot", and other places. We are, indeed, greatly honored to have him come to this meeting to represent British surgery of the very highest type. I will say that British surgery, in comparison with what we see in this country, did not suffer at all in our estimation. It is good. Mr. Turner is one of its best representatives. He is also a Perpetual Student at St. Bartholomew's, and a Freeman of the City of London. Mr. Turner.

THE PAGET TRADITION*

BY G. GREY TURNER†

JAMES PAGET, physiologist, pathologist, surgeon, and man of honour, who died over 30 years ago, was one of the greatest ornaments of the Victorian Era. As the leader of the profession in his day, he stood for Rectitude in Surgery. His example has become a tradition, and it is of it I wish to speak this morning.

I was led to select this subject because your Society had the acumen and grace to make Paget one of your honorary members in 1882, when he was 68 years old. Furthermore, my presence at your interesting Exercises is due to the fact that I have come to Boston to receive from your Surgical Society the Henry J. Bigelow medal, and I notice that a former recipient, W. J. Mayo, speaks of the great admiration of that famous Boston surgeon for James Paget. And there is just this personal reason that in company with your distinguished member Dr. Harvey Cushing, I have the honour to be one of the six perpetual students of Paget's old hospital, that wonderful Institution founded by the monk Rahere over 800 years ago, and still ministering to the needs of the populace in proximity to the old priory of St. Bartholomew in London, in connection with which it was first founded. Then most of my teachers had come under the spell of Paget, with them his example was a tradition, from them the torch was thrown, and I feel I am only fulfilling a sacred trust to hand it on.

First let me sketch the main facts of the life of this remarkable man.

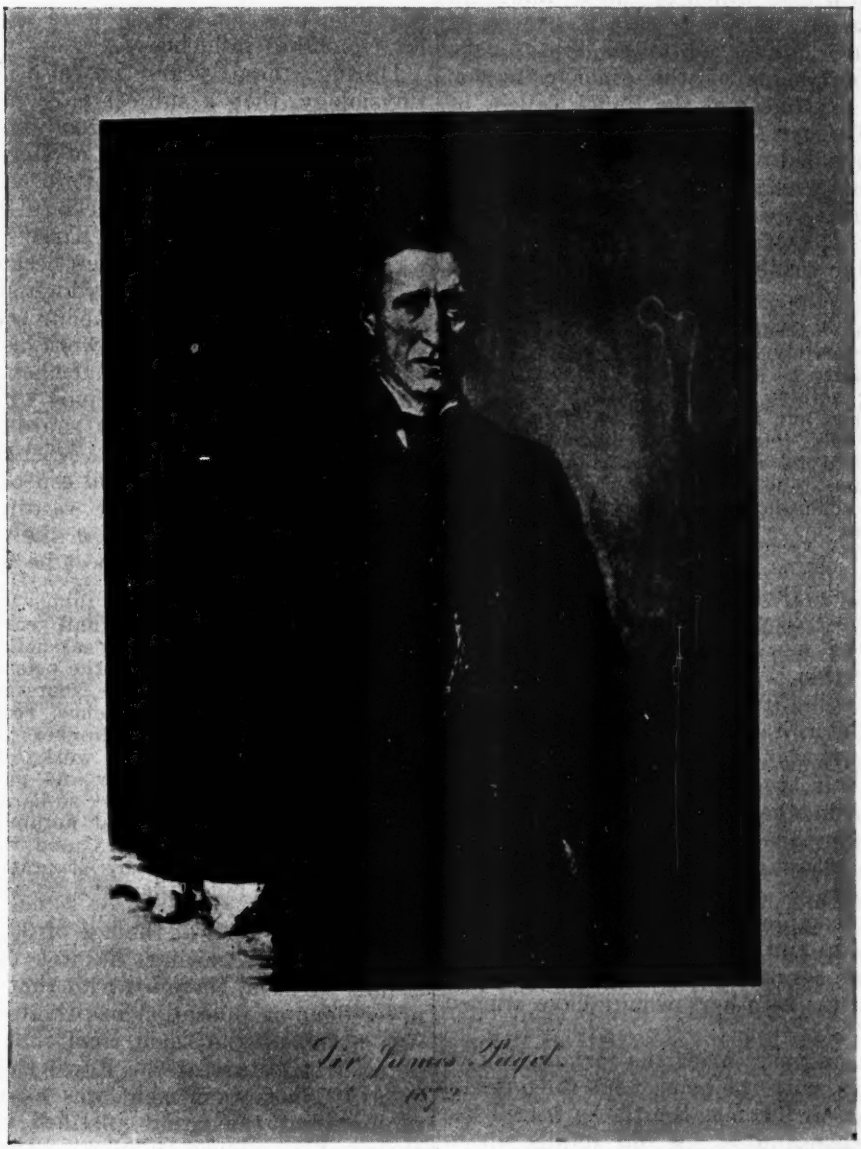
James Paget was born at Yarmouth, on the Norfolk coast on January 11, 1814, the youngest of the nine surviving children of the seventeen born to his parents. His father was a good business man, hard working, honourable and greatly respected, a respect the more secure in that it followed him into adversity. His mother was the crowning glory of his parenthood, a woman of iron will and grim determination, who lived for her family, but withal artistic, musical and a great collector. While yet a very young man James Paget became inured to adversity, for his father's business began to fail and he had often to borrow money to help him meet his liabilities and in later years with his elder brother he helped to pay his father's debts, and when all who pressed had been satisfied, he hunted up two who had not done so and insisted in paying them in full!

Paget may therefore be said to have been well born in the sense of good parents and a united family life. Like all boys brought up near the sea he wanted to follow that calling, but

*Read before the Section of Surgery at the Annual Meeting of the Massachusetts Medical Society, Boston, June 10, 1931.

†Turner—Professor of Surgery in the University of Durham, England. For record and address of author see "This Week's Issue", page 648.

instead was apprenticed to a surgeon in his own town, and he gives an interesting account of how his three and a half years in that capacity were spent. The work in the surgery was like that in the casualty room of a hospital, while on market days people dropped in to be bled; then there was dispensing and bookkeeping and other odd jobs. In general he concludes that while the insight was valuable so far as it went, the time spent was too long for what he learnt of the work of his profession. But it gave him an opportunity for rambling in the surrounding country in pursuit of Botany and of natural history, which proved an invaluable training.



After concluding his apprenticeship he went up to London, travelling by coach, which took fifteen starving hours to complete the journey, and entered as a student at St. Bartholomew's Hospital. At that time the school was at a low ebb and, as he could not afford the 500 guineas for a premium as apprentice to one of the surgeons, and had not come up from one of the Universities, his position was not very good. None the less he soon made his presence felt, and in his first year carried off all the prizes. It was at this time that he first gave proof of his powers for he not only *saw* but *observed* those little specks in the muscles in the dissecting room, which he proved to be due to the encapsuled entozoon, which we now know by the name of Trichina Spiralis. Having obtained his qualification by passing the necessary examination at the College of Surgeons, he stumbled into the great decision of his life by determining to remain on in London, hoping and working and waiting for something to turn up. In his memoirs he gives a graphic picture of that waiting time, and his struggles to make a living and a place for himself at the Hospital.

Opportunity was for long around the corner, but he never despaired, working at anatomy and at languages and writing abstracts for the jour-

nals. This work was dull and lonely and he records how, while burning the midnight oil, he was frightened if he heard an unusual step on the stairs. Though desperately poor he was audacious enough to become engaged to Miss Lydia North, who waited for him for eight years, crowned by a union of unalloyed happiness.

In 1837 he was appointed curator of the Hospital museum, a post which occupied him from 9 to 4 on five days of the week. It proved of vast importance for it led to his selection to prepare the catalogue of the great collection of Hunterian specimens at the Royal College of Surgeons, a further task which lasted 7 years. This, in its turn, led to his Hunterian Professorship, and to his writing his Surgical Pathology, and thus indirectly to any success in life he ultimately enjoyed. Of these tasks of catalogue making he later wrote:

> ". . . it required a method of writing which is excellent for education in accuracy—an education terribly neglected. I described every specimen as I saw it standing or lying before me; nothing was to be told but what could be then and there seen; nothing that could be only imagined or remembered: there was to be merely translation from eyes to hand. And I venture to say that in tasks of scientific description no other method than this, where it is possible, should be trusted".

In 1843, while this work was going on, and when he was just 28 years old, he was appointed Warden of the newly formed residential college in connection with the Medical School of his Hospital. In this capacity it was his duty to supervise the welfare of the 20 or 30 students who were always in residence and to advise them as to their studies. It was to be a better time for, in the following year, he married, and began that life of conjugal happiness which had so great an influence on his career. The success of his Wardenship was immediate, and complete, and when his term of office came to an end, 8 years later, he was able to epitomise its results by saying "The students have lived as their fathers would have wished them to live."

Some eighteen years after the termination of his wardenship, with the help of his friends Mr. Callender and Sir Thomas Smith, he traced the career of a thousand of his old pupils up to fifteen years after entering the School. This investigation proved that while the world changes man is always the same. This report concludes with the following paragraph which may be safely accepted for all time by students and teachers as what must always be the last word on the subject:

> "Nothing appears more certain than that the personal character, the very nature, the will of each student has far greater force in determining his career than any helps or hindrances whatever . . . . Every student may draw from his daily life a very likely forecast of his life in practice; for it will depend on himself a hundredfold more than on circumstances."

Character is moulded at an earlier stage and no subsequent environment can replace the value of home training or the discipline of the preparatory school. But Paget probably does himself less than justice in this, for how many of the students that in the final survey proved that they had made good were the product of his ennobling influence?

During these years he also lectured on Physiology, then a subject only just separated from anatomy, little understood and less appreciated. But his knowledge of German had enabled him to keep abreast of the young science, and his lectures were so successful that they became the foundation of Kirke's Physiology which after many many years became the popular Halliburton's textbook, which still holds the field today. But all this labour seemed a poor preparation for his life's work as a practical surgeon, though we must remember that in those days the merely operative part of surgery did not occupy the very large share that it does today. Even if it had, the scientific study of anatomy and physiology and especially of pathology, would have made the waiting time worth while. But there was more in the training than was obvious and in retrospect he writes:

> "And there were many things to come in after-life, for which these dull years were an excellent preparation. To say nothing of the long courses of study of the scientific foundations of surgery, these years gave good means for learning patience, readiness to work with colleagues, willingness and ability for official and routine work; they compelled to habits of order and punctuality; they compelled me to work so hard and wait so long for a return that nothing in after life could seem laborious, and that which some call the monotony of practice could often seem full of variety."

At last, in 1847, at the age of 33, after eleven long years of waiting, he was appointed assistant surgeon, though up to that time he had never done an operation in private practice. It was at about the same time that he was appointed to lecture at the Royal College of Surgeons. The appointment was a great surprise to him, but the result justified the Council's choice of an almost unknown young man, and the lectures were highly appreciated and were very well attended and by many of his seniors, and this greatly encouraged him. This confidence shown by his seniors was probably reflected years later in his own support of a brilliant junior, for when I first paid a visit to Sir John Bland-Sutton—then Mr. Bland Sutton, in 1900, he very kindly invited me to his home and in the dining room were portraits of Hunter and of Paget, and standing before the latter Sutton recalled with enthusiasm and pride,

how Paget had attended five of his Hunterian lectures, and had written an apology for his inability to be present at the sixth!

But about this time his increasing family made it necessary that he should court practice, and as he could not appear to be doing so while living in the poor district near the hospital, he made the momentous decision to go into the fashionable part of the city, and to enter the competitive field. When he gave up the Wardenship he moved west to Henrietta Street, and started practice at 37 years of age. Previous to this he had never made more than £200 a year from seeing patients, but now his monetary success was steady and complete for his income starting at about £700, rapidly crept up to the £10,000 a year which it maintained until he gave up operating when it soon dropped to about half that amount. But his work then and for many years was one of incessant toil. The day usually commenced at 7 or 7.30 with private operations, in those days carried out in the patients' homes. From 10 to 1 he saw patients at his own house then, after a Spartan lunch, came the hospital practice, then visits to patients in more distant parts of the town, or country journeys, while after dinner came letter writing—there were no typewriters in those days—or preparation for lectures, or necessary reading until far into the following morning. This routine seldom occupied less than 16 hours a day, and was kept up during all the most active years of his life.

In 1858, at the age of 44, he moved his domicile once again to a better address at No. 1 Harewood Place, which is now a short street joining Hanover Square and Oxford Street. Such is the lure of his name for me that when in town I never miss an opportunity of passing the site of this house which was the centre of his activities for so many years.

He was made a member of all sorts of learned societies at home and abroad, and had many honorary degrees conferred upon him. But responsibilities also crowded upon him so thickly that he could make no pause in his activities, and had always to work at high pressure—"to within an inch of his life" as he once said.

In due course he became Surgeon Extra-ordinary to the Queen, and later Surgeon in Ordinary to the Prince of Wales, and finally Sergeant-Surgeon to the Queen, and he was created a baronet when, in 1870, at 56 years of age, he resigned his surgeoncy to St. Bartholomew's Hospital having served it faithfully, as Percival Pott once said, "man and boy" for the long period of 36 years. The necessity for this step he much regretted, but it was forced upon him by considerations of health, for he had just fortuitously recovered from a most serious attack of septicaemia the result of a postmortem infection sustained at an examination at the hospital which he personally conducted.

But he soon resumed most of his former activities and worked as hard as ever, fearing that the public might think he was no longer wishful, or indeed capable, of practice. This was quite contrary to the truth for in after years he stated that had he died before 60, his wife and family would have been very poor.

He was familiar with the risks attending the bestowal of professional honours, and always took care to be particularly active after any announcement of this sort. I have known the same fear in our time, and one friend on whom a knighthood was conferred, told me that he could not afford to announce it on his doorplate! In Paget's case the offer of a baronetcy caused him deep thought, but eventually it was "accepted as a pleasure to myself and my friends, and a duty to my profession, which is the better for honours of this kind".

In 1878, at the age of 64, he gave up operating, not only because he was beginning to feel the strain severely, but because this branch of surgery was becoming revolutionised by the teachings of Lister and he felt that these new developments would be safer in younger hands. But he continued in large consulting practice, and was incessantly active in public duties such as the Council of the College of Surgeons, the General Medical Council, and as Vice Chancellor of the University of London. In addresses to Medical Societies and general bodies he made many important announcements, and expressed most valuable opinions, the fruit of his long and vast experience. For instance at the age of 69 he gave an address on "The Incentive to Study in General Practice, and the Neglect of such Opportunities," and at 70 on "Infant Life and its Preservation", when he expressed ideas far in advance of his time. At 73 years of age he was made President of the Pathological Society of London, and urged that "practice is full of opportunities for science"—with him science meant measurement, carefully accurate observation and the collection of facts. When over seventy he developed a plan for making use of the records of his old cases and after eight years' work he published the result as "Studies of old Case Books." At 76 he attended the International Medical Congress at Berlin, at 77 he actually travelled to Rome to see a patient, and at 79 he attended the Tercentenary Festival of the University of Dublin, as a delegate of his own University of London.

After this his activities gradually diminished, though he was never idle and in his 80th year he gave his last address to the students of his old hospital before the Abernethian Society where, 60 years previously, he had read his first paper on the discovery of the Trichina Spiralis. One extract will show his matured judgment on the opportunities and duties of our work:

> "It is often said or implied that in our profession a man cannot be both practical and scientific; science and practice seem to some people to be incompatible. Each man, they say, must devote himself to the one or the other. The like of this has long been said and it is sheer nonsense."

In 1895 Lady Paget died and thus he was separated from the happiest and most helpful associations of a lifetime. The blow was severe and he was never quite the same again though he still did what duties lay before him with all his might, but it was a losing struggle, and he gradually retreated before destiny. His death occurred peacefully on December 30, 1899, in his 85th year. The first part of the funeral service was conducted in Westminster Abbey, and was attended by a large body of distinguished mourners. When all was over and the strains of the "Dead March" were heard as each mourner slowly moved away, "it was not in the darkness of sorrow but in the afterglow which follows a cloudless sunset" (Howard Marsh). As he had said of the death of his own father at 82, it was "a solemn rather than a sad event".

May we ask ourselves in what did the influence of Paget lie, and how has the example of his life become a tradition which has correctly guided so many of our surgeons?

Surely first there was his example as a worker for like John Hunter his friends always found him employed, and it has been said that he so loved work that he estimated the worth of his acquaintances by their output of it. He exhibited a vehement and unflagging determination which gave himself no pause, and was like one of the forces of Nature. He never took note of personal convenience or comfort, or even safety, and for years he never wore slippers or sat in an easy chair, and one of his intimate friends has stated that he does not think he ever had one! Once a task was undertaken he never faltered until it came to an end, and it was so with the day's work, for whatever the hour of the night, or more like early morning, he never left off until it was done. The motto which Sir Spencer Wells had carved over the portal of his house at Golder's Green might have served for his own! "Do today's work today." His indomitable will carried him through six attacks of pneumonia, and it often seemed to those about him that he simply would not die. In public duty he was punctilious to a fault, and careful of the time of others, as he would expect them to be of his own. He hated quarrels and would go almost any length dictated by honour to avoid them, and whenever possible he appealed to the method of arbitration. As a medical writer he had no rival, and used pure and perfect English without effort. In an age of orators he was acknowledged one of the best speakers of his time and his Hunterian Oration delivered 54 years ago is still spoken of as a masterpiece, and is looked upon as a model for all other orators. H. R. H. the Prince of Wales, the Dukes of Argyll and Westminster, Dean Stanley, Lord Acton, Mr. Huxley, Mr. Tyndall and Lord Ripon with Mr. Gladstone were all present. The latter, himself a great orator, divided mankind into two sets, the happy minority who heard it, and the to-be-pitied majority who had not the good fortune. But this success was not without effort, and he took the greatest pains in preparation for important occasions, and learned every word by heart so that he spoke without notes.

His lectures to students were equally carefully prepared and of them an old pupil has recorded that

> ". . . . not a student ever missed them; he never had a note and was never at a loss for a word, and every word he said was sweet to listen to".

Many of his published lectures rank among the classics of medical literature, and are read today for their grace and charm, as well as for their wisdom. The following short extract shows how beautifully his ideas were expressed:—

> "To degenerate and die is as normal as to be developed and live: the expansion of growth and the full strength of manhood are not more natural than the decay and feebleness of a timely old age."

He made great contributions to Clinical Surgery, and his original papers on the disease of the breast, and of the bones associated with his name, still remain complete and perfect descriptions of those diseases, to which practically nothing has been added from the clinical side since he wrote them.

Paget was in every sense a cultured man, he was born in a cultured circle, though like Hunter he never had the advantage of a University Education. When success was assured and some leisure came his way, he loved to mix with men of letters, and he knew all the important people of his day, among them your Oliver Wendell Holmes and James Russell Lowell.

He might have been a success in any honourable walk of life, but he had chosen the profession of Medicine, he loved his avocation, and had the highest sense of the importance and dignity of his calling. His relations with his fellows and with the public were always on a high plane, and the profession the world over owes Sir James a great debt for the part he took in representing them in the eyes of the public, and always with honour.

In reflection Paget commented on the incessant toil of his earlier years, and concluded that he could only have done it by the possession of a happy temperament, which could adapt itself to any circumstances. As your Osler might have put it, he understood and practised the "art of detachment" to the full.

In his memoirs he has left an account of some aspects of private practice that were general and

not intimate, for no man was ever more careful to preserve confidences, and no one more hated idle gossip. He always had the greatest regard for the value of experience in private practice, while he subscribed to the views of William Hunter who said:

> "Were I to make a man truly great in his profession, I would put him in a large hospital, where he might attend the sick and dissect the dead."

And thus Paget:—

> "One who has not studied in both hospital and private practice is not much more than half instructed in his profession."

He may be looked upon as a surgeon who attained complete success in both branches of practice, and he says:—

> "I was not disqualified by any of the gravest hindrances to success; as by being habitually idle, time-wasting, unbusinesslike, unpunctual, uncivil, unable to work with others; faults which I have seen singly or together spoiling the careers of men whose knowledge might have brought them great success.
> Neither, on the other hand, could I fairly assign any part of my income to self-advertisement, or sheer impudence, extortion, unfairness or mere greediness! I think it was all so fairly earned that I might be regarded as an example of the rule which I have often tried to impress on pupils: that anyone with a safe knowledge of his profession and free from such faults as I have enumerated, may be as certain of success in the practice of medicine or surgery, or both, as in any other business in life: or even more certain because his prosperity may be very nearly independent of that of others."

Paget saw that this liberty to work untrammelled by outside interference was our most precious heritage. It is so still, and it should be our constant desire and ambition to preserve it.

And he speaks of the trials of the introduction to practice, and records how for long he felt as though he were being examined by those who called him in, though in the fulness of time, when steady success came, he said that he supposed that he must have passed! In his relationship to practitioners he took care to behave with scrupulous fairness, and even with a kind of self-repression:—

> "All his patients—the innumerable multitude that admired or almost worshipped him, and the few who were rather terrified of him—all alike trusted him, knowing that he would hold their confidences sacred. And he was trusted no less by every member of his profession. Those who sent patients to him knew that he would never speak or think lightly of his duty towards themselves. And this belief in his honour was only a part of his profound influence on his profession."

But he was well aware of the Discipline of Practice, and he often felt the scourge, so that his words on this matter are particularly comforting, and should be in the minds of all those who smart under what they conceive as some slight or unfairness by those for whom they have tried to do their best:—

> ". . . the undeserved praise given to the members of my profession is far greater than the undeserved blame, so much so that it is not fair when men make themselves angry or unhappy at an unmerited blame imputed to them by their patients: they would on the whole suffer more if their patients always held their tongues".

He was never tired of speaking of the importance of regular employment, and of the value of insistent duties.

> "I see and do nothing but my work, and at the days end am glad to feel how many evils of thought and word one is saved from by having one's mind so occupied and by having no temptation to think and talk of other men's affairs, and characters. I am every day the more sure that, not only in society, but in one's own heart and home, the more things are thought of to the exclusion of persons, the less is the sin and folly and waste of thought."

But it was the same Paget who appreciated so much the freedom from responsibility on well-earned holidays, the better appreciated because he had waited so long before they came his way, for he once went for 17 years without a real vacation.

> "What happy hours they were! in their contrast of carelessness with the care of mind with which, here, one goes from one responsibility to another, and always with the thought that, while meaning to do good, one may, through imperfect knowledge or oversight, do harm."

But he was not careless of the rewards of practice, though he continually shows that he measured these by the esteem and repute in which he was held, rather than by monetary considerations. He well recognised the distinction between professional reputation, as judged by his colleagues, and that due to public esteem. In the one case the opinion is of those fit to judge, in the other often to the mere talk of those of whom the majority are quite unable to form a reasonable opinion. On this matter he wrote

> "A full measure of good public repute is certain to come to all who deserve it, whether for their knowledge or for their carefulness, laborious attention, gentleness, or other good qualities; but reputation as measured only or chiefly by money, may be obtained by the most ignorant through self-assertion, self-advertisement, or mere impudence."

His words on professional work are priceless, and admirably express what all must have found who have come in contact with those whose standards vary:

> "One continually hears it said, 'I did my best; but these things will happen': and yet what a man has called 'doing his best' was not doing so well as he had done before, or so well as he will do next time. Let me warn you against this. Men constantly say

> 'These things have happened to better men; they have happened to this or that person of distinction; so I need not be surprised at having them.' There is no more miserable or false plea than this. But there are some people who seem to have a happy art of forgetting all their failures, and remembering nothing but their successes, and, as I have watched such men in professional life, years have always made them worse instead of better surgeons. They seem to have a faculty of reckoning all failures as little, and all successes as big; they make their brains like sieves, and they run all the little things through, and retain all the big ones which they suppose to be their successes; and a very mischievous heap of rubbish it is that they retain."

During his active hospital work his influence on his students was immense, and is gratefully remembered by the few who survive, and has fortunately been handed down through the written word of this master.

In 1863, when he was 49 years of age, he gave the Introductory address at the opening of the Winter Session. It was in praise of the "Motives to Industry," and contained some striking passages:—

> "Your engagement in this profession binds you not only by considerations of your own interest, but by the weightiest responsibility to God and man to do your duty in it with all your might. Keep this constantly in view; daily remind yourselves that you propose to take in hand the lives and the welfares of your fellow-men; daily think quietly of what all this involves; and then you will daily decide that not even your own lives must be much dearer to you than the duties of your profession."
>
> "Experience is of no natural growth in us; it is not commensurate with age. After about 30, wise men may grow wiser but unwise men rarely grow wise—therefore there are many old men with no experience at all."
>
> "And there is yet another temptation against which I venture to warn you. That which will most harass you in your practice will be the apparent success of dishonesty. You must be prepared for it for it will not cease in your time, if indeed it ever does."

And then follow these priceless sentences, with which he concludes his address:—

> *"The burden of my address is work, lifelong work. And so it is and so it must be; there is no success without it. A kind of success indeed there is without it—the getting of money without honour, and to that there are many ways, but we do not teach them here."*

Paget was an excellent business man and always kept his affairs in perfect order, so that whenever he had died they would have been the cause of the least trouble to anybody. This business capacity was well brought out in connection with the preparation for the International Medical Congress of 1881, over which he presided. The task was very heavy and involved two years' work, no less than 120,000 notices being sent all over the world. Sir James was then 67, but he did not miss a single meeting of the Committee. His ideals were a great stimulus to his colleagues for he always insisted that the business of the Congress should be primarily for scientific work, and for the advancement of the profession, and this high standard had much to do with its undoubted success. In the event 3,000 visitors attended, of whom 1095 came from overseas. As President he gave a notable address of welcome. The following extract expresses the tone of all he did for that great occasion:

> "We had better not compete where wealth is the highest evidence of success: we can compete with the world in the nobler ambition of being counted among the learned and the good who strive to make the future better and happier than the past."

In every way it was a wonderful address, delivered in his best style. One of his family wished to have the manuscript, but Paget would not let it be kept, and tore it up at once lest it should make him vain!

Through all his success and in every trial his devoted wife was by his side. No one has ever given better testimony to the influence of a good woman than Paget in his relation of the happiness of his domestic life. When utterly impecunious and harassed by the burden of his father's debts he took what might be considered the most foolish step in his life, for he became engaged, and was supported in his loneliness by the association of the lady who was to become his faithful helpmate for another 51 years. After nearly forty years of married life he gave this delightful and touching account of domestic felicity:—

> "In May 1844 I married and began to enjoy that happiness of domestic life which has already lasted without a break, without a cloud, for 39 years. From this time the 'being alone' was the being alone with one who never failed in love, in wise counsel, in prudence, and in gentle care of me. With her it was easy to work and be undisturbed by anything going on around me; a habit which I can advise everyone to learn. Her admirable music and her singing, with a matchless gentle voice, and a pure, cultivated style, were a refreshing accompaniment to my evening reading and writing, and when these were over she wrote for me, copying for the press my roughly written manuscripts, sitting with me till midnight or far into the morning, all alone, or, after a time, with the baby brought down in its cradle and watched and fed.
>
> I can recommend the plan to all young married people. It is an intensely happy one and may teach them to work in the midst of what are commonly called interruptions. I owe to it that I have never once needed to leave my family or any tolerably quiet party of friends in order to work alone or undisturbed; whether for writing, reading or any similar work, no kind of good music or talking has ever interrupted me. I have thoroughly enjoyed them even while at work."

The influence of his daily life on those around him was profound and some of his sayings may almost be said to have become proverbial:—

"No man ever did good work who was not frequently over-worked."

Of someone who said he had no time:—

"You have all the time there is."

To a discontented man:—

"You have a good wife and good children, what more do you want?"

To his students:—

"You should never state anything as a fact until you feel that you can swear to it."

Similarly, the clear, logical way in which he expressed himself, often stamped what he said on the memories of those that heard him:—Of the study of Botany:—

"The knowledge was useless—the discipline of collecting it beyond all price."

On the death of an old friend:—

"There are very few of us left now, but I believe there are better in our places."

After illness:—

"I could not have believed how hard it is to break from the habit of doing all one's work with all one's might whatever it might cost."

"I am chiefly sorry for my illness on account of the distress and anxiety it has occasioned you all."

It has been said, I think by Pascal, that the profoundest work of wisdom is to know how to grow old, and certainly Paget had attained that, for the greatest wonder was of his old age. Work is so surely a habit that it becomes part of the life of those who early acquire it. He never gave up any of his activities unless he felt that he could not perform them or until he saw someone better fitted to take his place. He only relinquished his hold on life little by little, reluctant to give up any little duty which he could still fulfil, and to the last eager to give little pleasures to those about him, and to avoid being a nuisance to those he loved.

Fortunately for us an admirable record of his career has been left us in "The Memoirs and letters of Sir James Paget," edited by one of his sons*. This work is a complete guide to the surgical life, an incentive to industry, a perfect code of ethics and a stimulus to all who would follow in his footsteps. I have heard one of the world's greatest surgeons speak of it as "The Surgeons' Bible," and I personally feel that no work has ever influenced me so much, or been a greater help and solace in time of professional trial. It ought to be by the bedside of every young surgeon.

This material age is beginning to realise that there was some good in the past. In my country the Victorian Era is being rediscovered as a pattern of many virtues we would do well to cultivate today. The example and the lessons of the life of Sir James Paget are as valuable as ever, and were never more necessary. His life and work have secured for him a place on the pinnacle of fame which will endure for so long as mankind value honour, character and love of duty.

"What he weaves no weaver knows," and Sir James cannot have known what an influence the web of his life was to have on his fellows. But if his record helps us to nobler things and guides us aright in times of difficulty, he will rest content.

*Stephen for many years the Secretary of the Research Defence Society. He died in 1926.

THE SURGICAL TREATMENT OF CERTAIN CHRONIC DISEASES OF THE LUNGS AND PLEURA*

BY WYMAN WHITTEMORE, M.D.†

CHRONIC EMPYEMA: Just when a case of acute empyema should cease to be considered acute and should be classified as chronic is a matter of opinion. It seems fair to consider all acute cases that have not become entirely well within four months of the time of onset as chronic. Fortunately the acute cases are so much better cared for at the present time than they were 15 or 20 years ago, that the number becoming chronic is much smaller. Fifteen or 20 years ago chronic empyemas were common in the clinic of the Massachusetts General Hospital whereas they are now comparatively rare.

Most cases will recover with little surgery providing there is intelligent after-care on the surgeon's part and willing coöperation from the patients. The only cure is when there is no longer any cavity. The old cavity may be sterilized and allowed to heal, which it will often do, but sooner or later there will be a recurrence of symptoms due to the reaccumulation of pus. This may take place in a few weeks or not for a year or two.

When a new case is presented for treatment it is a wise policy to explore the cavity, establish dependent drainage and excise a piece of the pleura for pathologic examination. It is not very rare to find a foreign body in the cavity which has kept up the discharge and caused the case to become chronic. Rubber tubing, rubber tissue and pieces of bone have been found which were not suspected before operation, as x-ray did not show them. I have known of only 3 cases of acute empyema that have healed and

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remained so over a period of years with a foreign body in the pleural cavity. In the first a rubber tube was removed after twenty years, in the second a rubber tube and safety pin after six years and in the third a piece of rubber tissue after six years. Pathologic examination of the pleura will occasionally disclose the fact that tuberculosis exists when it had not been suspected previously.

Following operation a thorough treatment with Dakin's solution, provided there is no fistula into the lung, combined with suction, if kept up for several weeks, may be of great aid in diminishing the size of the cavity. During this time the patient should be taught breathing exercises, setting-up exercises and those to correct faulty posture. The size of the cavity should be measured from time to time. After the patient leaves the hospital a drainage tube should be kept in until there is no longer a cavity. As the patient's strength increases, out-of-door exercises such as walking up and down hill, golf and chopping wood may be indulged in with great benefit.

If after some six months of this treatment the cavity has not become obliterated, some form of plastic operation should be performed. A flap of muscle may be used to fill the small, or comparatively small cavities. In the larger ones it may be necessary to do several operations in which sections of a number of ribs are removed and the cavity filled with a series of flaps taken from both muscles and skin.

The old classical operations of Eslander, Schede and Fowler are rarely used at the present time. When necessary Fowler's decortication of the lung, after removal of ribs and costal pleura, combined with freeing the lung from adhesions (mobilization of the lung) gives excellent results. This is a formidable operation and should not be done in individuals over 35 or 40 years of age. When it is planned to perform this operation the patient should be carefully prepared for it by general hygienic measures and a long course of Dakin's irrigations to sterilize the cavity so far as possible.

Tuberculous empyemas, in which there are no organisms other than tubercle bacilli, should have a thoracoplasty performed. In those cases in which there is a secondary infection, external drainage by means of the closed method should be done and this followed in due course of time by thoracoplasty.

Chronic Pulmonary Abscess: The treatment of pulmonary abscesses that have existed over a period of time ranging from six months to one or two years is difficult and often unsatisfactory.

Medical treatment, which includes good hygienic care with postural drainage and the correction of any septic foci such as infected sinuses and teeth, is of little value in producing a cure, but may improve the condition somewhat. This, combined with the administration of arsphenamine, may improve the case in that the foul odor of the sputum is lessened, but we know of no case actually cured.

There is no reason to think that artificial pneumothorax will have any real benefit in such cases. When an abscess has existed for such a long time the lung and the costal pleura will almost certainly be adherent so that pneumothorax cannot collapse it. On the other hand if, by chance, the lung and pleura were not adherent, pneumothorax could not collapse the abscess on account of the firm fibrous tissue which always surrounds the cavity in these cases. We have never seen a case more than temporarily benefited, and this improvement has been more mental than physical.

If bronchoscopic treatment is to be undertaken it should be realized that a great many such treatments must be done. It must be kept up indefinitely, at first every few days and then with a gradual lengthening of the time between treatments. If bronchoscopy reveals a narrowing of the lumen of the bronchus leading to the abscess, and this can be dilated, some improvement in drainage should follow. Instances in which real chronic pulmonary abscesses have been cured by this form of treatment are exceedingly rare, but many are improved and kept more comfortable, in that they have less cough and sputum, for as long as the treatment is continued.

We have never seen any chronic abscess case benefited by phrenic nerve operation and have seen several patients who felt sure that they were more uncomfortable following it.

In considering surgery in these long-standing cases it must be remembered that in every case there are more abscesses than the main one that may be demonstrated by x-ray and opened at operation. These abscesses may vary in size from microscopic ones to those readily seen without any magnification. Some of the cavities may communicate with the main one, but many do not, so the course of the patient following the drainage of the main cavity is often most unsatisfactory to both himself and the surgeon. Although there is good drainage and the amount of sputum lessened a little, yet there still remains considerable expectoration. Often, as time goes on, it is obvious that no real benefit has been obtained by the operation, and the unpleasantness of the whole situation has been increased by the addition of a foul discharging sinus. To this distressing picture must be added, for the surgeon at least, the anxiety caused by the fear of a secondary hemorrhage. This may take place at any time while the patient is in the hospital or even after being at home for months. Usually a severe hemorrhage is difficult if not impossible to control. All this discussion points to the fact that it is better to

operate on pulmonary abscesses reasonably early than to wait for an almost hopeless chronic condition to be established.

Cauterization of the chronically infected area of the lung by the technique advocated by Graham of St. Louis has produced excellent results, especially in Graham's hands. This operation may well be used in those cases which make no satisfactory progress following drainage of the main abscess. The dangers of secondary hemorrhage and air embolus are real ones. We have experienced fatal secondary hemorrhage and also fatal hemorrhage at the time of operation.

Bronchiectasis: In discussing the treatment of this condition, only those cases in which the disease is limited to one lobe of the lung are to be considered. In the use of this term are included cases of true suppurative bronchiectasis, bronchopulmonary suppuration and multiple abscesses of the lung with or without true bronchiectasis.

We believe that no cure can possibly be brought about by medical treatment. However, it is conceivable that an individual, financially so situated that he can devote his life to taking good care of himself, with the aid of medical supervision, may live a long time and possibly have some enjoyment from life.

Bronchoscopy may be dismissed by saying that it offers no chance of cure. As a palliative, done at frequent intervals during the lifetime of the patient, it may lessen the amount of sputum that has to be expectorated and thereby make life a little more tolerable.

Pneumothorax, also, may be dismissed in the same way by saying that it will not produce a cure. Often the individual will be more comfortable if a fairly good collapse can be brought about, and remain so as long as the collapse can be maintained or until some complication develops. When the collapse can no longer be maintained the old symptoms quickly return.

The theory that elevation of the diaphragm by operation on the phrenic nerve will bring about better drainage has been advocated by a few surgeons. This is being applied to cases in which the disease is in the lower lobe and the diaphragm not fixed. By raising the diaphragm the direction of the bronchi may be changed from a vertical to a horizontal one and thus the drainage improved. This may occur. On the other hand changing the position of the diaphragm may so alter the direction of the bronchi that drainage will be hindered and the patient made worse. We have seen no beneficial results but realize that our experience is limited.

It is a question of whether thoracoplasty does any good. If one grants that it does some good it is again a question of whether the amount of good obtained recompenses the patient for the suffering that he has gone through in one or more operations. Personally, I doubt it. We have seen temporary benefit following this operation in cases in which the disease was limited to one lobe, either upper or lower, but after a few months the old symptoms returned. It may be that by collapsing the lobe an abscess that had formerly been draining well no longer drains at all, and so the condition is made worse.

The only hope of curing this disease is by lobectomy. Unfortunately the mortality following the older methods of operating was so high that the operation was abandoned in those clinics in which it had been tried, and in others it was never attempted. It is probably fair to estimate that the mortality was from 50 to 90 per cent. During the last five years considerable progress has been made in the technique of lobectomy so that the mortality has been greatly reduced.

The technique for removal of the lower lobe first described by us in 1927 (*Annals of Surgery,* Aug. 1927) is the most satisfactory one that we know of. Under gas oxygen anesthesia the pleural cavity is opened after a long section of the seventh rib has been excised. The opening is spread widely and the diseased lobe examined to determine the extent of the process and also the amount of adhesions about the lobe. This is very necessary, as, if the disease is in the lower part of the upper lobe or if the adhesions about the diseased lobe are very firm and extensive, it may be better judgment not to attempt a lobectomy. The lobe can be freed in most instances without undue risk. If the upper lobe is adherent to the costal pleura so much the better, but if it is not the operation is proceeded with and probably with less difficulty. Lobectomy being decided upon, sections of enough ribs are removed so that the lobe may be delivered from the pleural cavity after adhesions and the pulmonary ligament are divided. The lobe is firmly sutured to the muscles of the chest wall by interlocking sutures deeply placed into the lung, as near the root as possible, tied, and then brought through the muscles and tied again. We prefer linen thread or heavy chromic catgut for these sutures. In some instances we have placed an elastic tourniquet about the root of the lobe in addition to the sutures. This can be tied very tightly and its ends brought out on to the chest wall and fastened there. Gauze is then placed around the lobe, coming in contact with the lower part of the upper lobe, which will aid this to become adherent, if it is not already so. A catheter is placed to the root of the lung, kept shut off, and the wound closed. The bloody serum that collects in the pleural cavity during the first few days after operation may be withdrawn by means of the catheter. When the operation is completed, the lobe of

the lung exteriorized seems small and it is smaller than when the operation was begun, since during the manipulation all of the air has been squeezed out of it. The blood supply to the lobe being mostly shut off by the tourniquet and the sutures, the lobe gradually becomes necrotic and sloughs off. The operation is followed by surprisingly little shock and the picture is quite different from that following the older methods. In 3 to 4 weeks the lobe has disappeared, leaving a clean stump deep in the pleural cavity with bronchial fistulae in it. As the lobe gradually sloughs away, the cough also lessens in the successful cases. The space in the pleural cavity is obliterated in three, four or five months by the diaphragm rising and the inflation of the upper lobe. By the time this takes place the fistulae are closed. Until the cavity is obliterated some form of drainage must be maintained just as in chronic empyema.

It may be wise to vary this technic to fit the individual case. In some instances it might be well to do a preliminary partial thoracoplasty and in others limit the first stage to freeing the lobe and surrounding it with gauze. It has seemed to us, in a limited experience, that this operation can safely be done in one stage and certainly much more easily than in two or more stages.

The results of operation done by this technic are briefly as follows: Ten patients were operated upon. Seven recovered and three died, a mortality of 30 per cent. Two died of pneumonia in the good lung, the first, ten days after operation and the second, two weeks after operation. The third died five weeks after operation from streptococcus septicemia. Of the seven who recovered from operation six are in good condition, four of these have no sputum and two raise not more than a teaspoonful every twenty-four hours. The seventh case is well so far as the operated side is concerned, but has developed disease in the other lung. All seven healed and their bronchial fistulae closed without any further surgery.

Alexander of Ann Arbor uses this technic with the modification of doing the operation in two stages. His results are extremely good in that he has had only two deaths in eleven cases so operated upon. (Personal communication.) Graham has done 3 cases by this technic with one death. (Personal communication.)

I have recently collected 48 cases of lobectomy from six surgeons, of which only eleven case reports have appeared in the literature. The rest are accounted for in personal communications to me, and undoubtedly will be published in the near future. Of the 48 cases, eight died, giving a mortality of 16.6 per cent. From these figures one can derive considerable hope that before many years the mortality will be still lower and the operation can be more frequently performed with considerable assurance of success.

SUMMARY OF SURGICAL TREATMENT IN CERTAIN THORACIC LESIONS*

BY STUART W. HARRINGTON, M.D.†

THE surgical treatment of thoracic lesions was slower in its development than the surgical treatment of lesions elsewhere in the body because of the mechanical and physiologic problems presented by the negative pressure in the thoracic cavity and the difficulty of access through the bony framework of the thoracic cage.

The rapid progress that has been made in this field of surgery in recent years has been due mainly to: (1) the marked improvement in the methods of diagnosis, particularly since the advent of roentgen rays, the bronchoscope and the thoracoscope; (2) the recognition of the importance of preoperative preparation of the patient; (3) the development of effectual mechanical means of avoiding open pneumothorax, which has been accomplished by the use of positive pressure anesthesia; (4) the marked advancement that has been made in the type of local and general anesthesia; (5) the development of methods of approach to the thoracic viscera through the bony encasement, with minimal structural loss and deformity, and (6) the improvement in methods of postoperative care, particularly in the use of the oxygen chamber.

In the following brief survey of some thoracic conditions, I will mention the most important points in the treatment of acute and chronic empyema, pulmonary abscess and bronchiectasis, pericardial and cardiac lesions, pulmonary tuberculosis, lesions of the esophagus, tumors of the thoracic wall, intrathoracic tumors and diaphragmatic hernia.

EMPYEMA

Empyema is the most common of the intrathoracic pyogenic infections which demand surgical treatment. The bacteria which most commonly invade the pleural cavity are the pneumococcus and the streptococcus. The pneumococcal type of empyema is more likely to occur late in the course of pulmonary disease, and is

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often mistaken for so-called delayed resolution of pulmonary infection. There is a tendency to early formation of pus and fibrin, with thickening of the pleura and stabilization of the mediastinum. The streptococcal types of empyema usually occur early in the course of pulmonary disease, and the formation of fibrin and thick pus, with thickening of the pleura, is less rapid.

From an anatomic standpoint, acute empyema may be total involving the entire thoracic cavity, with complete collapse of the lung on one side or encapsulation may take place, and the empyema may be of the interlobular, parietal, mesial, or diaphragmatic type, in which only a portion of one side of the thoracic cavity is involved, and only partial collapse of the lung takes place. The encapsulated cavities may be single or multiple.

Empyema usually occurs as an unavoidable complication of some primary pulmonary disease. The patients are very ill, for their resistance has been lowered by the primary pulmonary infection, and surgical treatment to alleviate the condition should be as conservative as possible.

The fundamental principle in the treatment of acute empyema is surgical drainage, but the time, site, and method of institution of drainage depend on the indications in the individual case. The cardinal principles of any method of treatment are adequate drainage, avoidance of open pneumothorax, rapid sterilization of the diseased region, early obliteration of the cavity by reëxpansion of the lung, and well-regulated medical treatment, with particular care as to nutrition.

The method of choice for achieving surgical drainage depends on personal experience. I have obtained the best results from the intercostal, closed method, and by the transcostal closed method, inserting the tube through the inner layer of periosteum after resecting a small segment of rib. The first method is most applicable in cases of total empyema particularly of the streptococcal type. The second method is most used in encapsulated types of empyema, usually of the pneumococcal type, and its chief advantage is avoidance of injury to the pulmonary tissue during the introduction of the tube into the empyema cavity. The tube is inserted through the thoracic wall by means of a trocar and a cannula which has been milled to the size of the tube which is to be inserted into the empyema cavity. In this way, airtight closure around the tube is insured. A clamp is placed on the end of the tube and is removed only when the empyema cavity is irrigated. The syringe is placed in the open end of the tube before the clamp is unfastened to avoid entrance of air into the pleural cavity. The pus is aspirated and the cavity irrigated at first with normal saline solution, and, if a bronchial fistula is not present, 0.5 per cent. solution of chlorinated soda is used to aid in sterilizing the cavity and liquefying the fibrin, thus acting as a chemical decorticant. This procedure is carried out every hour during the day and every two or three hours at night. The patient is immediately started on respiratory and blowing exercises to expand the lung and to obliterate the cavity. The vital capacity is estimated daily to determine the progress of reexpansion of the lung. A specimen of the material drained is taken for culture, and the capacity of the cavity is measured once a week. Great care should be exercised in maintaining nutrition and body fluids of the patient, particularly of children. The tube is gradually shortened as the lung expands, to obliterate the empyema cavity. The completeness of the obliteration of the cavity by expansion of the lung depends on adherence to the cardinal principles of the method of drainage, as has been stated. I believe that the operative mortality of acute empyema has been greatly reduced by the closed method of drainage. In a series of seventy-one cases of acute empyema, of which the etiologic factors were pneumococcus in forty-one cases and streptococcus in thirty cases, there were four deaths from operation, a mortality of 5.6 per cent. Three of the deaths occurred from the streptococcal type of empyema and one death from the pneumococcal type, with bilateral involvement. Complete obliteration of the cavity usually can be accomplished in 60 to 80 per cent. of all cases and in even greater proportion among children. In the remaining 20 to 40 per cent. there is a small residual cavity, which will require open operation and resection of the ribs over the cavity to assist in its complete obliteration.

As chronic empyema is derived from the acute condition, by a gradual development on which an arbitrary time limit of three to four months may be placed, it would seem that if all the factors leading to chronicity could be anticipated, recognized, and obviated during the treatment of the acute conditions, there would be no lapse into a chronic state and complete healing would result. However, uniformity of cases and perfection of diagnosis and treatment cannot exist, and in many cases chronicity is certain from the onset; such cases are those in which the etiologic factor is tuberculosis, actinomycosis, amebiasis, subdiaphragmatic and pulmonary abscesses rupturing into the pleural cavity, and degenerated pulmonary malignant growths, with secondary infection and rupture into the pleural cavity.

In pyogenic postpneumonic types, the most common factors which usually lead to the development of chronic empyema are those of faulty drainage. For instance, drainage may be performed too late or too early and may be of short duration; the drainage tube may not be in the most dependent or favorable position; the

tube may be introduced into the thoracic cavity too far and may injure the expanding lung, or it may be left too long and thus form a thick, fibrous sinus tract; or the tube may be of too small caliber. Other factors are the collapse of the lung, secondary encapsulated cavities, pleurobronchial fistula, foreign bodies such as drainage tubes, or bismuth in the empyema cavity, the formation of deposits of calcium lining the empyema cavity and osteomyelitis of the ribs from secondary infection of the thoracic wall. Since many of these conditions are avoidable, and treatment demands operative procedures that are of much greater magnitude than those necessary for the treatment of acute conditions, it is important that proper treatment be carried out during the acute stage of the disease.

Surgical treatment in these cases should be as conservative as possible, but unfortunately many cases, particularly those of long duration, require extensive operative procedures which are most safely done in multiple stages. The operative procedure should be selected which will restore the patient to normal health in the shortest time, with the least loss of structure and function, and with the minimal amount of discomfort and deformity. There are two general types of treatment for these chronic cases. The first type of treatment is one in which the fibrosed, thickened pleura, which is binding the collapsed lung to the thoracic wall, is removed by a so-called operation of decortication, permitting the lung to expand. This type of treatment is usually applicable only to the subacute types of empyema. The second type of treatment may be called a collapse method. It is opposite in principle to the treatment of the acute condition, for the thoracic wall is brought down to meet the lung by removing the ribs, intercostal muscles, and thickened pleura over the empyema cavity. This type of operation is usually necessary in cases of more than six months to one year in duration. Before the more extensive operative procedures are performed, all septic material should be removed from the empyema cavity, which should be reduced in size as much as possible by prolonged irrigation with 0.5 per cent. solution of chlorinated soda. The irrigations may be carried out through the sinus tract, or, if this is not adequate, a dependent opening should be made for irrigation. The patient's general condition is usually greatly improved by this preoperative treatment. These cases usually can be divided into three main groups: (1) those with small cavities, in which the overlying ribs, intercostal muscles and thickened pleura can be removed at one operation; (2) those with cavities of larger size, which require multiple operation and the turning of muscle flaps into the cavity to assist in its obliteration, and (3) those with cavities involving practically the entire hemithorax, with complete collapse of the lung, in which treatment is first by extrapleural resection of ribs in multiple stages, gradually bringing the thoracic wall down to meet the lung. The upper ribs are removed first, and the cavity is irrigated between stages. When the resection of ribs is completed, there is usually a small residual cavity which requires open operation.

The operative mortality is not high, and it has been greatly reduced by operations in multiple stages. In a series of 252 cases, in which all types of operation were performed, there were six deaths, an operative mortality of 2.3 per cent.

PULMONARY ABSCESS AND BRONCHIECTASIS

Pulmonary abscess and bronchiectasis may be considered under the general term of pulmonary suppuration, because the two conditions are usually associated. It is rare that either lesion exists as a distinct, uncomplicated entity. All patients suffering from pulmonary suppuration require medical care, and many demand surgical intervention in the course of the disease. I do not believe it is possible to overestimate the importance of proper medical treatment during the acute stage of the disease. This consists mainly of rest, a nutritious diet, and fresh air. Probably 50 to 60 per cent. of patients are cured by conservative treatment. In the remainder of the cases it is important to recognize any surgical indications before the disease becomes progressively worse. It is doubtful if conservative measures should be continued for more than six to eight weeks if marked improvement has not taken place. In many cases early surgical treatment, consisting of relatively minor operative procedures, will effect a cure and save the patient from extensive, chronic pulmonary disease, necessitating much more radical and hazardous operative treatment. The effectiveness of surgical treatment depends on early correct diagnosis and accurate localization of the lesion. The fundamental principle in the surgical treatment of pulmonary abscess is to induce drainage. The channel for drainage may be an internal one, such as a bronchus, or one which terminates externally, such as a surgical wound in the thoracic wall. In some cases it is necessary to perform partial pneumonectomy to obtain sufficient drainage of multilocular pockets. The method of obtaining drainage depends to some extent on the duration of the lesion and on the situation of the diseased region as well as on whether the abscess cavity communicates with a bronchus.

In carefully selected cases, particularly those in which there are early, central abscesses, artificial pneumothorax may be employed for a reasonable period of time. If improvement is not noted, this treatment should be discontinued because of danger of infection of the pleural cavity.

Those abscesses that are least likely to drain through a bronchus are of the peripheral type. Fortunately, this is the type of abscess that is most accessible to and favorable for surgical drainage, and that is accompanied by the least operative risk. Very often nature has formed firm adhesions between the visceral and parietal layers of the pleura, and drainage can be accomplished at once if necessary. I prefer to perform partial resection of two or more ribs and to incise the abscess with a knife through the internal layer of the periosteum. After the wall of the abscess has been examined to determine the type of the cavity, a portion of the diseased lung can be removed with the electric cautery. This removal may be accomplished at the time of primary operation or preferably at a second operation. In most cases it is advisable to operate in two or more stages. If the abscesses are deep-seated and if the visceral and parietal layers of the pleura are not adherent, two or more operations are necessary. The first operation is directed toward walling off the pleural cavity distal to the infected portion, by inducing formation of adhesions. After adhesions have formed, the abscess is treated with the electric cautery. It is usually advisable to remove a portion of the overlying pulmonary tissue to assure sufficient drainage and to avoid too early closure of the operative wound.

The greatest difficulties of diagnosis are encountered in the bronchiectatic type of pulmonary infection, and the indications for treatment in such cases are not definitely established. The majority of the patients are usually ill for a long period, and the patients are greatly debilitated when they present themselves for treatment. The cardinal principles of surgical judgment in these cases are the same as for serious disease elsewhere in the body. Although complete eradication of the disease and restoration of health are always the chief objectives, none of the surgical procedures so far advanced has attained this standard of perfection. However, many procedures have proved to be of benefit.

The procedures employed in the operative treatment of bronchiectasis depend on the indications presented in each case. The type of operative procedure should be as conservative as possible and yet consistent with effective treatment. In many cases multiple operations of different types are required to bring about symptomatic relief. It is advisable to begin surgical treatment in these cases with a less extensive operation, and to reserve the more radical procedure for application in those cases in which the less extensive procedures do not bring about a response. The more common procedures employed are artificial pneumothorax, phrenicotomy, surgical collapse by extrapleural resection of the ribs, and partial pneumonectomy and lobectomy.

Artificial pneumothorax may be of benefit in early cases, particularly if the patients are children with early lesions, and without adhesions between the visceral and parietal layers of the pleura.

Phrenicotomy has its greatest application in the treatment of early, unilateral lesions of the lower lobe. In some cases this procedure may effect symptomatic cure. The majority of patients are benefited; the improvement is evidenced by decrease in the amount of sputum and increase in the ease of expectoration.

Surgical collapse of the lung by extrapleural resection of ribs has its chief application in treatment of the diffuse and unilateral types of bronchiectasis, in which small abscesses are disseminated throughout the lung, and in cases in which coalescing, central abscesses have established drainage through a bronchial fistula, particularly if these lesions are associated with severe hemorrhage. This procedure is performed in multiple stages. The number of operations necessary depends on the general condition of the patient.

Partial pneumonectomy and lobectomy for eradication of the disease may be performed as primary operative procedures or they may be employed secondary to compression therapy in cases in which symptoms have continued. This type of treatment is especially applicable in those cases in which chronic, multilocular, bronchiectatic abscesses are present at the periphery or are more or less confined to one lobe of the lung. The risk is great and the operation is more safely performed in multiple stages than in one stage. The first stage is directed toward walling off or compressing the diseased lung; later the diseased pulmonary tissue is removed with the electric cautery. This procedure would seem to be the operation of choice, because by it the diseased tissue is partially or completely removed. However, operative mortality is high, and the operative morbidity of many who survive operation is considerable. I believe that there is a definite indication for this type of treatment in a small number of cases, but that it should not be employed until more conservative measures have been tried. It is probable that with improvement in technical methods, the number of cases in which this procedure is applicable as a primary operation will increase.

PERICARDIAL AND CARDIAC LESIONS

Knowledge of the indications for surgical intervention, and the technic of operative procedures for cardiac lesions have been somewhat slow in development. The knowledge gained through operative experience during the World War has been of greatest value in the recent development of this branch of surgery. It was clearly demonstrated that the heart would withstand considerable trauma and manipulation.

The necessity of drainage of purulent pericardial effusion has been recognized for many years. The opening for drainage should be in as dependent a position as possible. I prefer the anterior operation, with resection of the left fifth and sixth costal cartilages and suturing of the pericardium to the wound. If fibrin or adhesions are present, they are separated with the finger, and rubber tissue is placed in the pericardial cavity, which is irrigated later with physiologic solution of sodium chloride.

Satisfactory progress has been made in the surgical treatment of many conditions which directly or indirectly involve the heart. Pulmonary embolism is treated by the Trendelenburg operation of embolectomy; mitral stenosis by section of the valves; angina pectoris by sympathectomy; chronic adherent pericarditis by cardiolysis, and injuries of the cardiac muscle by cardiorrhaphy.

PULMONARY TUBERCULOSIS

The basic treatment of pulmonary tuberculosis is a well-regulated medical régimen, the purpose of which is to build up the patient's general health, and to aid in establishing immunity to the disease. The fundamental principles of medical care are life in the open air, a nutritious diet, and rest. Surgical treatment should be instituted only in those cases in which well-regulated treatment in a sanatorium has been given, in which healing after a reasonable length of time has failed to take place, and in which the type and extent of the lesion have been taken into account. There is no surgical operation that will cure tuberculosis, but in most unilateral cases that do not respond to medical care surgical treatment should be instituted as a part of the general care. In such cases it is often a life-saving procedure, and offers possible cure in many cases in which, formerly, there was thought to be no hope of cure. The chief object of surgical treatment is to aid in putting the lung at physiologic rest, and to aid in obliteration of cavities by compression of the pulmonary parenchyma.

The type of surgical treatment indicated depends on the situation, and extensiveness of the lesion, and on the condition of the patient and his response to surgical intervention.

The most common types of surgical treatment are artificial pneumothorax, phrenicotomy, extrapleural thoracoplasty, and extrapleural pneumolysis.

Artificial pneumothorax has its most appropriate application in early cases of the more central type of tuberculosis, in which there are no adhesions between the visceral and parietal layers of the pleura. It is the simplest method of attaining compression of the lung and consists in introducing filtered air into the pleural space through a needle. Great care should be exercised in the first introduction of air not to penetrate the pulmonary tissue, and 250 to 300 c.c. of air is sufficient. In this method of treatment, injection of 400 to 600 c.c. of air is required every two to three weeks, because of constant absorption from the pleura. The duration of this type of treatment varies with the extensiveness of the lesion; in early cases it is rarely advisable to allow the lung to expand in less than a year, and in more advanced cases two or more years are necessary. In most cases there is almost immediate improvement in cough, in the quantity of material expectorated, in hemoptysis, and in weight, with return of temperature to normal. Besides putting the lung at rest, compression promotes fibrosis around the diseased portions of the parenchyma of the lung. This method is not without some dangers, the greatest of which is probably pyopneumothorax. In any case in which pleural effusion requires aspiration, it is important to make thorough bacteriologic study of the fluid removed. If pyogenic bacteria are not demonstrable either by smear or culture, a drainage tube should never be placed in the pleural cavity, regardless of the gross appearance of the material removed. The danger is that of causing secondary infection in the sterile tuberculous cavity, following which a draining sinus often persists for many years. If pyogenic organisms invade the pleural cavity, the resulting empyema should be treated by the closed method of drainage. If adhesions are present, preventing collapse of the lung, they may be cut by the closed method of Jacobeus and Matson, using the thoracoscope and cutting the adhesions with the electric cautery. The results are satisfactory in the hands of those skilled in the use of the thoracoscope. In more advanced cases, particularly those in which there are adhesions, extrapleural thoracoplasty usually is indicated. The operation consists in subperiosteal resection of the posterior portions of the ribs. It is essential that the posterior angle of the ribs be removed as far as the spinous processes of the vertebrae. The extent of lateral resection and the number of ribs to be removed depend on the type and extent of the lesion. When complete thoracoplasty is indicated it is usually done in two or more stages, depending on the condition of the patient. Compression of the lung is permanent in these cases, and the danger of reactivating a tuberculous process is minimized. This procedure has been of great aid to arrest and cure in cases in which, formerly, response to conservative treatment was unsatisfactory and in which the patients died from progressive extension of the disease.

Phrenic neurectomy is often of benefit in these cases, and is best performed by evulsion of the nerve through an incision in the neck. It produces paralysis of the hemidiaphragm, and compresses and puts the lower part of the lung at rest. In early cases it may effect cure without further surgical treatment, but it is usually used

in combination with other forms of surgical treatment. Extrapleural pneumolysis may be used in selected cases, but I believe that this type of treatment is rarely indicated and that the results are often unsatisfactory. This treatment consists in freeing the pleura from the thoracic wall and in filling the cavity with paraffin, fat or muscle. It is not uncommonly followed by empyema.

ESOPHAGEAL LESIONS

Diverticulum may occur in any part of the esophagus, but most commonly in the upper portion. From an etiologic standpoint there are two types, pulsion diverticula and traction diverticula. Pulsion diverticula are essentially congenital, and occur just above the true esophagus, in the lower part of the pharynx. The opening of the diverticulum is constant in its situation, in the posterior wall of the pharynx at the level of the cricoid cartilage in an area of muscular deficiency. This type of diverticulum may also occur in the lower third of the esophagus, just above the cardiac opening of the stomach. In diverticulum of the upper part of the esophagus, the sac usually presents a little more to the left side than to the right side of the neck. It often becomes of enormous size and extends down the neck into the anterior mediastinum.

Traction diverticula are caused by contracting scar tissue outside of the esophagus, usually are seen around the hilum of the lung, and are due to scar tissue resulting from broken down lymph nodes.

Esophageal diverticula in the lower part of the esophagus may become adherent to the lung, may rupture into the parenchyma, and may produce a bronchial fistula, thus making free communication between the esophagus and the lung.

The operative results in cases of diverticulum of the upper part of the esophagus are very satisfactory, and the mortality practically negligible. The best operative results are obtained by complete removal of the sac. This can be accomplished by an operation in one or two stages. The operation in one stage is more applicable to small diverticula. The sac is ligated at its juncture with the esophagus, and the stump is either inverted or plicated into the wall of the esophagus. I have had very good results from this type of operation, and believe that the possibilities of recurrence are less than in the operation in two stages. In the operation in two stages the sac is dissected out of its bed, away from the surrounding structures, and is sutured to the sternomastoid muscle and subcutaneous structures. The sac thus protrudes outside of the wound, as a Mikulicz type of operation. It is usually advisable to place a silk suture at each side of the neck of the sac as a landmark to facilitate identification of the sac at the second operation. The sac is removed at a second operation that is done six to eight days later. This type of operation is usually done if diverticula are large and extend into the mediastinum. The object of the two stages is to permit mediastinal space to become walled off before the sac is cut off. This walling-off is a safeguard against mediastinal infection resulting from possible leakage of the esophagus at the point of closure of the esophageal opening. The operative risk is much greater in cases of diverticulum of the lower part of the esophagus, because in such cases a transpleural approach is required, and often the condition is complicated by mediastinitis, suppurative pleuritis and pneumonia. Cases in which the diverticula have ruptured into the lung require treatment as for pulmonary abscess. The sac in this case is treated by ligating between the esophagus and lung. The esophageal end is sutured to and is pulled into the esophagus by means of a stomach tube, and the esophageal wall is plicated behind the inverted neck of the sac. The portion of the sac that is adherent to the lung is either dissected from the lung or sutured when the closure of the pulmonary tissue is effected. In postoperative care it is important that the patient be fed through a duodenal tube for a week or ten days.

Carcinoma of the esophagus most commonly is found in the middle third of the structure and has been successfully removed by transpleural operation. Several types of operation have been suggested; the most common type attempted in cases which present a lesion in the upper part of the esophagus is the Torek operation. This operation results in formation of the following substitute for the esophagus; an artificial esophagus extends from the severed end of the upper segment of the esophagus, which has been brought to the exterior through the tissue of the patient's neck, to a gastrostomy tube. In lesions of the lower end of the esophagus resection is made after the diaphragm has been paralyzed by cutting the phrenic nerve; the stomach is brought up through an opening in the diaphragm, and end-to-side anastomosis of esophagus and stomach is made, and the diaphragm is sutured to the stomach, thus producing a diaphragmatic hernia. I have performed exploration in a number of cases but have found metastasis in most instances which prevented completion of the resection. In my experience carcinoma of the esophagus is of a high grade of malignancy, and metastasis is usually present when the lesion is large enough to produce sufficient symptoms to cause the patient to seek relief. I believe that operation is the only hope for possible cure by the present methods of treatment employed, but the results, although encouraging, have not been satisfactory. If improvement is to be expected in the surgical treatment of these lesions, they must be recognized and treated earlier in the course of the disease.

TUMORS OF THE WALL AND INTERIOR OF THE THORAX

The percentage of tumors of the thoracic wall that are malignant is greater than that of intrathoracic tumors that are malignant. In my experience of seventy-three cases in which I have performed operation, in forty the tumors were of the thoracic wall and thirty-one of these (77.5 per cent.) were malignant. In thirty-three cases the tumors were intrathoracic, of which seventeen (51.5 per cent.) were benign; this is a much higher percentage than formerly was thought to represent the proportion of intrathoracic tumors which are benign. I believe that all of these tumors are potentially malignant and that complete surgical removal is the only treatment that offers any permanent relief. The most outstanding advance in the early diagnosis of these tumors has occurred since the use of roentgenology as a method of diagnosis. More accurate knowledge as to the type of lesion, its situation, and its extent, is often obtained by inducing artificial pneumothorax or by injecting iodized oil into the bronchial tree before roentgenologic examination. The most common benign tumors in the anterior mediastinum are dermoid and teratoma. The most common benign tumors in the posterior mediastinum are neurofibroma and fibroma.

The most important considerations in surgical treatment of new growths involving the thoracic wall, and of intrathoracic new growths, are early diagnosis, preoperative preparation of the patient, selection of the most suitable method of approach, application of adequate mechanical means for maintaining intrapulmonary pressure, and postoperative care. The significance of early diagnosis in malignant growths is obvious. In benign growths it is important to institute surgical treatment before the tumor has encroached on important structures within the thorax or before it has attained such great size that the operative risk is greatly increased. The most important factor in preoperative preparation is induction of artificial pneumothorax eight to ten days before operation, to permit the patient to become accustomed to the altered intrapulmonary pressure associated with unilateral collapse of the lung.

Most of the advancement that has been made in the surgery of intrathoracic disease has been accomplished because of marked improvement in the administration of anesthesia. The greatest immediate danger of intrapleural operation is open pneumothorax with collapse of the lung. This may produce severe respiratory and circulatory disturbances that may result in sudden death. These dangers have been practically obviated by the use of intratracheal differential pressure during anesthesia; a positive pressure apparatus is used. The chief technical difficulties associated with surgical removal of these growths are as follows: (1) access is through the bony encasement of the thorax and a method of approach must be selected which will give the greatest exposure of the tumor with the minimal amount of trauma to the thoracic viscera and thoracic wall; (2) traction on the important structures in the mediastinum to which the tumor might be adherent is an element of danger, and (3) complete reconstruction of the thoracic cage, so as to restore the normal relations of the thoracic viscera and to give the minimal amount of deformity, is advisable.

The method of approach to intrathoracic tumors depends on the situation of the growth. If the tumor is attached to the thoracic wall it is best to make the incision over the site of the tumor. If the tumor is in the anterior or posterior mediastinum, or in the lung, I prefer to make a posterolateral incision between the vertebral border of the scapula and the spinal column, and laterally just below the angle of the scapula. The pleural cavity can be opened through the intercostal space, or through the internal layer of periosteum after partial resection of a rib; the position of the incision through the thoracic wall depends on the situation of the tumor. In selected cases of anterior mediastinal tumor it may be advisable to use an anterior approach by splitting the sternum or turning a flap of the anterior thoracic wall, but most anterior mediastinal tumors are more safely approached through a posterior incision.

The type of operation depends to some extent on the lesion found, and the indications in each case. In most cases in which circumscribed tumors are entirely intrathoracic, it is best to remove the tumor completely by a transpleural operation in one stage. I have attempted to remove some posterior mediastinal tumors by an extrapleural operation but usually have found the pleura so adherent to the tumor that the pleural cavity was ultimately opened in the course of the removal of the growth, thus subjecting the patient to all of the dangers of the transpleural operation as well as increasing the possibilities of pleural effusion from trauma to the parietal pleura. In a few cases of anterior mediastinal tumor in which I have operated through an anterior incision it was necessary to split the sternum, and in others it was necessary to cut the clavicle, but in most cases in which the tumor was entirely within the thoracic cage I have used a posterior transpleural operation, deflating the lung during removal of the tumor. This type of operation and approach was used in twenty-three of the thirty-three cases in which operation was performed. In malignant growths, particularly those involving the lung, it may be advisable to perform the operation in several stages. This type of operation is also applicable in many cases of tumor of the thoracic wall with intrathoracic involvement. In some cases in which new growths are close to, or involve the diaphragm, it is necessary to remove a portion of the diaphragm with the tumor of the thoracic

wall, and the defect in the thoracic wall can be repaired by utilizing the paralyzed diaphragm after phrenicotomy. The mortality in these cases is not great, considering the magnitude of the operation. In thirty-three cases in which I have operated in the last five years, there were four deaths. Since it often is impossible definitely to determine the operability or the type of tumor by present methods of diagnosis, and since there is reason to believe that a benign tumor will undergo malignant change, I believe that in all cases of intrathoracic tumor exploration should be carried out unless there is clinical evidence of a hopeless, inoperable condition.

DIAPHRAGMATIC HERNIA

Since the advent of roentgen rays as a means of diagnosis, a constantly increasing number of cases of diaphragmatic hernia are being recognized, and it is probable that the condition is even more common than present records would indicate.

Recognition of diaphragmatic hernia from the clinical symptoms only is often difficult. The complex symptoms often simulate those of other diseases of the abdomen and thorax of which the most common are cholecystitis, gastric ulcer, cardiospasm, intestinal obstruction, and angina pectoris. The symptoms are often complex because of the various structures involved in the hernia. They depend on the amount of mechanical interference with the function of the herniated abdominal viscera, on the degree of interference with normal function of the diaphragm, and on the amount of increased pressure within the thorax, which causes impairment of respiration and circulation. These conditions, which influence the syndrome of hernia, depend to some extent on the type of hernia present, whether it is congenital or acquired, and whether trauma was an etiologic factor.

From a clinical and surgical standpoint the history of preceding injury is helpful in establishing the diagnosis and in determining the type, urgency, and prognosis of operative treatment. Because of this practical clinical and surgical significance of trauma as an etiologic factor, I have suggested the classification of diaphragmatic hernia in two main groups, nontraumatic and traumatic, and have subdivided these according to the various types.

Nontraumatic.—The first type is due to embryologic deficiency, and usually there is no enclosing sac. The most common sites, in probable order of frequency of occurrence, are (1) through the hiatus pleuroperitonalis (foramen of Bockdalek); (2) through the dome of the diaphragm; (3) through the esophageal opening (usually with a sac); (4) through the foramen of Morgagni, and (5) through a gap left by absence of the left half of the diaphragm.

The second type is acquired after birth. The sites of occurrence are (1) through a point of embryologic fusion of the diaphragm; (2) at the sites named under congenital types, and (3) through the esophageal hiatus. This type has an enclosing sac.

Traumatic.—The first type is due to indirect injury to the diaphragm. It may occur at any point, including points of embryologic fusion, but the region most commonly involved is the dome and posterior half of the left side of the diaphragm. This condition usually is the result of a severe, crushing injury, and there may or may not be a sac. When the hernia is through the esophageal opening there is a sac, and when it is through the leaf of the diaphragm there is usually no sac.

The second type is due to direct injury to the diaphragm. The hernia may occur at any point, and is usually the result of penetrating wounds, such as those from a gun or knife. Rupture of subdiaphragmatic abscess or empyema may be the cause. Usually there is no sac.

Treatment.—In cases of esophageal diaphragmatic hernia, in which the stomach only is involved, and in which the symptoms are mild, the treatment may be conservative. If symptoms become progressively more severe, the possibility of serious complications is great, and I believe that treatment in all such cases should be surgical unless radical operation is contraindicated because of the patient's general condition. Operation should be performed before severe incarceration, with obstruction and traumatic lesions of the stomach, has occurred. The operative risk is increased by gastric retention, and the technical difficulties are enhanced by fixation of the stomach to the diaphragm and to structures within the thorax.

In all cases in which the colon or small intestine is involved in the hernia, early operation is demanded because of the danger of intestinal obstruction. However, these cases are usually traumatic in origin, and it is best not to operate until the acute symptoms due to the injury have subsided, if the patient's condition will permit.

Preliminary paralysis of the diaphragm, produced by phrenicotomy, is often of value in incarcerated and strangulated hernias, because it prevents spasm of the muscle and relaxes the hernial ring. It is of great advantage in closing large hernial openings, when there is considerable loss of structure of the diaphragm, for relaxation of the muscle permits the defect to be closed without tension, and if the diaphragm has been torn from the wall of the thorax it can be sutured to the intercostal muscles. Phrenicotomy is also of value in cases in which there is moderate congenital shortening of the esophagus; the relaxation and elevation of the diaphragm following this procedure permit the hernial opening to be sutured around the lower part of the esophagus, entirely above the herni-

ated portion of the stomach. Small hernial openings, usually of the esophageal type, can be closed without undue tension, and phrenicotomy is not necessary. In some cases in which it seems advisable to reëstablish the function of the diaphragm, the nerve may be crushed or cut, and then sutured, and function will be reëstablished within three to six months thereafter.

Phrenicotomy may be used as a palliative measure when the radical operative procedure of closure of the defect in the diaphragm is contraindicated because of the patient's condition. The purpose of this procedure is to prevent spasm of the diaphragm, which is the cause of the severe attacks of incarceration of the stomach. This procedure does not completely relieve the symptoms. There is always a moderate amount of gastric distress immediately after, or shortly after, heavy meals, but the patients get along fairly well if they are careful about their diet. Phrenicotomy relieves the acute attacks of incarceration if the stomach is not fixed in the thorax. It is not applicable to hernias in which a large portion of the stomach is in the thorax, causing marked pressure on the heart and lungs, nor is it applicable in any case in which the intestines are involved in the hernia. This procedure should not be employed when radical operative repair can be effected.

The only operative procedure which will assure complete relief of symptoms is replacement of the herniated abdominal viscera and repair of the abnormal opening in the diaphragm.

I have used both the abdominal and the thoracic approach in reduction and repair of these hernias. In some cases in which the thoracic approach was used it was necessary to resort to a combined thoracic and abdominal procedure in order to free the adherent abdominal viscera from the abdominal side of the diaphragm, if repair was to be accomplished without injury to abdominal viscera. I prefer the abdominal approach because I believe there is less risk of thoracic complications. This approach is of particular advantage in cases of esophageal hernia, for the herniated stomach is usually confined in a sac in the posterior mediastinum and does not enter the true pleural cavity.

The abdominal approach is of value in determining the presence of associated lesions in the herniated abdominal viscera as well as of any other pathologic lesion within the abdomen which may require treatment at the time of operation or later. The most common associated conditions are traumatic gastric erosion, gastric and duodenal ulcer, and cholelithiasis.

Recently I reported a series of forty-five surgical cases, in thirty-eight of which the hernia was repaired by the abdominal approach. Five died from the effects of the operation; there were no recurrences.

Discussion

A. D. Rood, M.D., Springfield: I am certain that every person in this audience feels that this symposium has brought to us a keen appreciation of the rapid advances surgery can make in a special field.

The history of this work, as brought out by Dr. Lund, vividly presents by way of contrast results that can be obtained not only from a better knowledge of pathology, physiology, or surgery but, as shown by Dr. Harrington, there must also be a recognition of four factors so essential to thoracic surgery:

1—*Ingenuity,* which permits of a ready application of modern mechanical and electrical devices.

2—*A mechanical knowledge of respiration* in the fullest sense of the term.

3—*Conservatism,* whereby operative stages are not to be measured by the amount of surgery performed, but are to be carried to a degree compatible with the patient's power to withstand.

4—*An exact diagnosis,* which must be the combined opinion of internist, roentgenologist, pathologist and surgeon, and, as I have been requested to say a few words about the bronchoscopic phase of this subject, may I add the bronchoscopist to this group.

As success in thoracic surgery is not only dependent upon skillful surgical dexterity, but also upon the preliminary and postoperative treatment based on opinions from this group, the bronchoscopist offers a service both in diagnosis and treatment, by frequently contributing, first, a confirmation of facts already known; second, additional data; and third, not infrequently, a diagnosis that cannot be obtained in any other way.

In referring to Dr. Binney's paper, I can say but little, as perhaps the bronchoscope has a narrower field of application in these acute cases. Yet I am convinced that the bronchoscope has a definite place in the treatment of acute pneumonias of the lobar type and postoperative atelectasis, and, of course, its value in foreign body work is without question.

But, in these acute traumatic cases which Dr. Binney has so clearly classified, it must always be borne in mind that the patients may have been, at the time of accident, subject to some chronic pulmonary condition; and again, these acute traumas may present injuries which are later to result in pathology of a chronic nature. Therefore, if only for these reasons, the bronchoscope is entitled to consideration, and its omission should be based only on a consideration of its contraindications.

Dr. Holmes has stated that the proper x-ray apparatus should be capable of delivering a large amount of current at a reasonably high voltage.

It certainly is discouraging to submit a patient to a bronchoscopic instillation of lipiodol and then attempt to read a blurred and distorted film which has been made almost useless by poor mechanical equipment, poor technique, or uncontrollable variations in current.

My experience, as a bronchoscopist, with lipiodol does not quite agree with that of Dr. Holmes, for I feel certain that we have repeatedly demonstrated the presence of bronchial communications with both empyemic and peripheral pulmonary abscess cavities, and have mapped both the solitary abscess or confluent bronchiectatic conditions, many of which could not be recognized in the routine film.

In routine work, many times one must be dependent on films and interpretations that may not always represent the highest degree of skill in technique and reading.

Dr. Harrington has mentioned the bronchoscope as one of the contributing factors to successful thoracic surgery, and, indeed, I am sure it would be difficult to dispense with endoscopy and obtain the same results, without great inconvenience.

The percentage of favorable results in pulmonary abscesses accessible to bronchoscopic drainage, and the improvement in cases of widespread bilateral suppuration not amenable to surgery offer the patient, oftentimes, either relief or permanent cure.

Coughs caused by the spilling of esophageal contents into the larynx or tracheobronchial tree, when due to esophageal stricture or sinus communication, may be definitely explained by esophagoscopy; and, if there could only be greater importance attached to the common esophageal symptom, dysphagia; esophagoscopy would at least lead to earlier diagnoses and aid the surgeon to make more hopeful prognoses.

Endobronchial growths, peribronchial compressions and bronchial stenoses can often be diagnosed in no other way.

In pulmonary surgery, the patient's preoperative condition may be improved by bronchoscopic drainage; and after operation, also, when pain, restricted respiration, large doses of narcotics and absence of cough reflex cause the patient to retain secretions in the bronchial tree rather than make the effort to raise them.

And finally, in any obscure pulmonary or esophageal condition, endoscopic examination offers, in properly selected cases, valuable assistance in rendering pulmonary, esophageal, and intrapleural diagnoses more exact.

EDWARD D. CHURCHILL, M.D., Boston: It seems to me that the remarkable cases of tumors presented by Dr. Harrington represent the most significant contribution to the surgery of the thorax that has come from an American Clinic. While isolated examples are on record that parallel some of his cases, I know of no similar series handled by any one operator. The convincing demonstration that thoracic tumors of this type may be dealt with surgically with so little risk to the patient makes it imperative for physicians to refer these otherwise hopeless cases for operative treatment as early as possible. Furthermore a grave responsibility is placed upon the surgeon who contemplates doing this type of operation.

The cases of diaphragmatic hernia form an equally brilliant series and likewise constitute a highly significant advance in surgical therapy.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17391

SYPHILITIC VERSUS RHEUMATIC HEART DISEASE AND THE IMPORTANCE OF HISTORY IN DIFFERENTIAL DIAGNOSIS

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. SVEN M. GUNDERSEN*: This patient entered the hospital on March 25. He was a fifty-one year old married native of New England. The chief complaints were dyspnea and upper abdominal discomfort.

First admission. He had been seen on the medical service seven years before. At that time he complained of symptoms of cardiac decompensation of a month's duration, without angina. Physical examination showed among other things a supracardiac dullness of 8 centimeters, with marked aortic regurgitation. There was no enlargement of the heart in the fifth space. No Austin Flint murmur was noticed. There was a slight amount of fluid at both bases. The liver was palpable three fingerbreadths below the costal margin. It was thought that the etiology of the cardiac condition was probably lues, but two Wassermann reactions on the blood were negative. X-ray of the chest showed marked enlargement of the supracardiac shadow; no measurements were given. He made good response to rest, digitalis and a little antiluetic therapy. He was discharged with a poor prognosis.

History of interval. After his discharge he went on a farm and rested for two months. He continued to take digitalis during that time. Then he felt so well that he went back to his work as a mail clerk and worked steadily for seven years until his second entry. He felt well and had little dyspnea. He had occasional twinges of sharp precordial pain radiating to the angle of the left scapula and lasting for a few seconds. These came on only after running 100 yards as fast as he could.

Six weeks before the second admission he had what he called "grippe"—a head cold, slight unproductive cough and general malaise. He had to give up his work for three days, but did not go to bed. Then he tried going back to work again, but after four more days, five weeks before admission, he went home one night feeling chilly, with epigastric discomfort, a little cough and some pleuritic pain in the left chest. The pain persisted. He did not, however, go to bed and did not improve during that time, but became progressively weaker. Ten days before admission he developed orthopnea, dyspnea on exertion and increase in severity of the chest pain. One week before admission he was so orthopneic that he had to sit in a chair to sleep at night. He developed edema of the ankles. His appetite failed completely. He had a choking sensation after taking a little food.

Four hours before admission he suddenly became acutely dyspneic and had pain in the same location, much more severe than ever before. He was gasping for breath and thought death was imminent. His physician gave him morphia immediately and sent him to the hospital.

Second admission, March 25. On examination he seemed to be in a very critical condition. He was pale, sitting straight up, gasping and breathing with so much difficulty that he could hardly speak. There was slight cyanosis of the fingers and toes. The lungs showed markedly asthmatic breath sounds. There were sonorous and sibilant râles throughout both chests and crepitant moist, râles at both bases, but no signs of fluid. The pupils were small, irregular and did not react to light and accommodation. The heart was distinctly enlarged to the left in the fifth and sixth spaces. We could not make out the supracardiac dullness exactly but thought it was increased. The action was regular. The sounds were of fair quality. The rate was about 100. At the base there were systolic and diastolic to and fro murmurs and at the apex an Austin Flint murmur with a diastolic thrill. The blood pressure was 154/76. There was distinct Corrigan pulse. The radials and brachials were tortuous. The liver edge was felt two fingerbreadths below the costal margin. Nothing else could be made out in the abdomen. There was slight pitting edema of the legs.

He was seen the same morning by Dr. Breed, who thought it was more likely to be rheumatic heart disease than luetic, in view of the history chiefly. He thought that there was definite mitral stenosis. The case brought up a great deal of discussion. It was the consensus of opinion that it probably was rheumatic heart disease.

X-ray examination was done at admission. The report was: "The outline of the diaphragm is obscured on both sides. The costophrenic sinus is obliterated. The heart shadow shows a general increase in size. The outline of the heart chambers is rather indistinct. A large part of the heart is obscured by the changes in the lower part of the chest. Extending outward from both lung roots well into the periphery of the lungs there is increased density of a mottled character apparently distributed along the course of the bronchi. The right apex is smaller and less radiant than the left but there is no definite con-

*Recently senior interne on the East Medical service.

solidation present. The supracardiac dullness is increased. The aortic knob is a little prominent. Examination shows evidence of a small amount of fluid at both bases. There may also be some fluid in the pericardium. The changes in the lung fields could be due to any chronic peribronchial process, although passive congestion probably plays a part."

His urine showed a great many red cells and white cells, 80 to 100 per field, with many hyalin, granular and cellular casts. For that reason salyrgan seemed contraindicated. He had a leukocytosis of 16,000 to 19,000 and evidence of anemia, 3,700,000 red cells and 70 per cent hemoglobin. Apparently the onset of the present illness was coincident with an acute infection. He improved at first with morphia and digitalis, but five days after admission suddenly became much worse. He had attacks of acute respiratory distress, with marked Cheyne-Stokes respiration and delirium. At such times the heart was fibrillating. The following day we thought he was improving, when he suddenly died.

DR. PAUL D. WHITE: There was a question of slight clubbing of his fingers.

CLINICAL DISCUSSION

DR. WILLIAM B. BREED: I think this case illustrates how much easier diagnosis is in retrospect than it is on the spot. Seven years ago he had evidence of a wide arch and a pure aortic diastolic murmur. Specifically I think the case illustrates the value of a history differentiating these two types of heart disease, rheumatic and luetic. It hardly seems reasonable to have expected him, with luetic aortitis and aortic regurgitation, to go back to a strenuous job and work at it for seven years with no digitalis and also with no real angina. And because of that very definite history and because, of course, of the finding of a definite thrill associated with a late diastolic murmur at the apex, the diagnosis of rheumatic heart disease seemed to be the best one.

I should like to know what Dr. White thinks in regard to the question as to whether an Austin Flint murmur in itself produces a thrill, whether we can say that if we feel a thrill associated with a late diastolic murmur we have not an Austin Flint murmur but definite mitral stenosis.

DR. WHITE: I think Dr. Breed's question is very difficult to answer. In case analyses which I have made of a series of patients, the presence of a thrill has usually depended upon the intensity of the murmur. I recall one or two patients with a Graham Steel murmur associated with a slight thrill. Once in a while one does find a slight thrill with a basal diastolic and with an apical systolic murmur. One may have quite a loud Austin Flint murmur and the character and intensity will not differentiate it from a murmur due to real mitral stenosis. I do not recall at present any certain means of differentiation or any case showing a thrill with an Austin Flint murmur. I have not looked up that subject. It would be well worth studying. In one case, after we reported finding a thrill I went back and failed to find a thrill the next day. The patient was weaker and the heart action was less strong. It is quite likely that the thrill which had been there the day before had disappeared.

Dr. Breed has covered the clinical discussion very well indeed. There are two possibilities. The definite history in the past of rheumatic fever is important. Also important is the point that for seven years this man had been able to carry on active life after having been in the hospital with congestive failure. The clearing up of congestive failure when there is luetic aortitis invariably surprises one. My own diagnosis was that probably both conditions had been present for years. It is wiser to diagnose under one condition. Certainly the diagnosis of rheumatic disease is more justified.

DR. JAMES H. MEANS: I should like to ask Dr. White or Dr. Breed whether in retrospect this case shows how these two conditions might have been differentiated seven years ago. Could syphilitic heart disease have been ruled out by anything except further history?

DR. WHITE: A more careful and detailed radiographic examination either then or now would have been of very great importance. The patient was too sick at the last entry to have a careful study made. The only report seven years ago was that the great vessels were quite wide. The differential diagnosis probably would be made with some fair degree of certainty by a study of the changes that might have occurred in the x-ray picture.

DR. BREED: Also at his age seven years ago if he had luetic heart disease, in the presence of the slight amount of treatment he had had, his blood should have shown a positive Wassermann reaction.

DR. WHITE: Yes. The majority of cases have positive blood Wassermann or Hinton reactions. Seven years ago there was a report of a mitral diastolic murmur by one observer, not confirmed by another, so it is quite likely that he did have some mitral stenosis seven years ago.

DR. GEORGE W. HOLMES: Seven years ago we were not doing oblique views of the heart. We could not then decide whether the increase in the supracardiac shadow was due to tortuosity of the aorta or to actual dilatation. I think that the old method is not so accurate as the one now used. At this last examination, because of the patient's condition it was not possible to carry out a complete study. That may have been the case the first time. From such films as we have I can only say that there is some increase in the supracardiac shadow and also in the diameter of the heart shadow. There is some fluid in the pleural space and there are some changes in the lungs which could be due to failing heart.

I should like to ask whether changes of this type in the lung occur with any frequency in luetic heart disease.

DR. WHITE: Yes, I think so. One can have quite marked pulmonary edema in cases of luetic aortitis; the heart failure is due to narrowing of the coronary mouths; cardiac asthma may accompany the pulmonary edema; in such cases dependent edema is due to secondary involvement of the right ventricle. One can have all the signs of failure from luetic heart disease that one would have with any other kind of heart disease.

CLINICAL DIAGNOSES, FIRST ADMISSION

Luetic aortitis.
Aortic regurgitation.
Congestive failure.

CLINICAL DIAGNOSES, SECOND ADMISSION

Rheumatic heart disease.
Aortic regurgitation.
Mitral stenosis.
Congestive failure.
Subacute bacterial endocarditis?

ANATOMIC DIAGNOSES

Rheumatic heart disease; mitral stenosis.
Aortic regurgitation, probably rheumatic.
Congenital anomaly of the aortic valve, enlargement of ring and cusps.
Hypertrophy of the heart, especially of the left ventricle.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found a somewhat unusual heart at autopsy. The aorta showed a marked degree of atheroma, but I could not find any evidence of syphilitic aortitis in gross or microscopically. The aortic valve was most unusually large, the circumference measuring over 10.5 centimeters after fixation. Each of the aortic cusps was fifty per cent larger than normal. The cusps met each other at the commissures reasonably well, another point against syphilis. The valve margins, though distinctly thickened, were not interadherent. The findings suggested a rheumatic lesion, and the presence of a definite stenosis of the mitral valve offers strong confirmatory evidence. The large size of the aortic ring with the corresponding enlargement of the cusps of the aortic valve could not be produced by any acquired lesion that I know of and must be considered a congenital anomaly. The heart was, of course, markedly hypertrophied.

Nothing of any importance was found elsewhere in the body.

DR. WHITE: One wonders whether possibly more mitral stenosis might have been developing in the seven years. Can you throw any light on that?

DR. MALLORY: No. It suggests a pretty old and inactive lesion to me, but I do not believe I can say whether it was five years old or fifteen.

DR. WHITE: Was there any active endocarditis?

DR. MALLORY: No.

DR. WHITE: It seems to me the chief reason that this patient went on as well as he did was that he probably did not have luetic aortitis.

DR. MALLORY: I think it would be interesting to make a more careful study of those aortic cusps and the aorta immediately beneath them than we have so far done. I have not wished to cut the heart up yet, but possibly that would throw some light on it.

DR. WHITE: In what way?

DR. MALLORY: I am interested chiefly in the size of the aortic ring and the size of the valves.

DR. WHITE: You do not think it was luetic?

DR. MALLORY: I do not believe so. If so it was restricted to a small distance in the aorta. It is not impossible, but it is quite unusual. Sections from the thoracic aorta showed nothing suggestive at all.

DR. HOLMES: Was there much hypertrophy of the left ventricle?

DR. MALLORY: Very marked. The heart was much bigger than that x-ray suggests.

DR. WHITE: How much did it weigh?

DR. MALLORY: 700 grams.

CASE 17392

A GRAVE ABDOMINAL LESION WITH MARKED LEUKOCYTOSIS

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. TORR WAGNER HARMER: This is the case of a woman of fifty-three who came into the Emergency Ward on the night of February 9 in a moribund state.

She had had an operation nineteen months before, a radical breast amputation for carcinoma. She had very pluckily soon returned to work as a linotypist. Sixteen months after that operation she had considerable difficulty with her bowels, having periods which lasted several days requiring massive doses of purgatives, suggesting that she had some partially obstructive condition. Despite that she carried on until her final illness. The patient's bowels had been quite regular until November, three months before admission, when for three days she thought she had a stoppage. She passed no feces at that time, but thought she passed some gas. This was relieved by a large dose of magnesium sulphate. In December she again suffered a similar attack and in January she had a third attack. Since that time it had been necessary to take a strong purgative every three or four days to keep her bowels open. There had never been any bloody, tarry or pencil-shaped stools. Six days before admission she again became very ill and faint with abdominal discomfort while at

work, and had to be carried home. She had severe sharp pains across the lower abdomen with constipation relieved by enemas. Purgatives had increased the pain. She also had frequent and burning micturition. For the past three days the pains in the abdomen had become gradually worse. The abdomen had been extremely tender to touch. She had felt hot and thirsty. Two days before admission she had a small normal movement in the morning. Since that time she had had no normal bowel movement. The night before admission she began to vomit. The morning of admission she had a little cereal for breakfast, but vomited it at once, and vomited everything she took during the day. The vomitus was not fecal or bloody in character.

She passed the menopause two years ago.

Examination showed a woman obviously moribund. The abdomen was distended. It was of board-like rigidity throughout. Pelvic examination showed a mass which occupied a considerable part of the false pelvis, but its outlines could not be satisfactorily determined. The white cell count was 34,000.

Although she was in a moribund state, her ability to react to infection made it seem to me justifiable to operate under local anesthesia with preliminary scopolamine and morphia. The preoperative diagnoses were, first, diverticulitis that had ruptured, second, some malignant process, metastatic from the breast, which had invaded the bowel and caused rupture, and third, a cyst with a twisted pedicle.

She was operated upon in a reclining position. She slept through the entire procedure. Her respirations at one time went as low as 6. The operation disclosed a diffuse peritonitis with free pus and also with the bowel matted together with fibrin. Next was seen a cyst about the size of a melon, gangrenous throughout, fixed posteriorly very firmly over a broad base. In attempting to mobilize it it was burst and there came from it a granular dark material, apparently decomposed blood. This was examined later and proved to be blood. It was impossible on account of the patient's condition and on account of the fixity of the mass to deliver it. Therefore it was marsupialized, the mouth being sewed to the lower angle of the wound and a drain placed in through the mouth. A cigarette drain was placed into the peritoneal cavity.

The next day she made such remarkable improvement that some hope of her recovery was entertained. The distention went down considerably. Following this, however, she became rapidly worse. The next day her pulse rose to 120 and her temperature to 103°. Her respirations were down, due perhaps to morphia. It was thought that she had some respiratory complication, but Dr. King could not make out any, and the correctness of his judgment was shown at the postmortem examination. She died on the third day, apparently of an overwhelming toxemia due to her peritonitis.

There is an interesting point here. Why was the cyst gangrenous? It did not have a twisted pedicle. It was firmly fixed to the posterior wall. And why did she have a purulent peritonitis? The only explanation seems to be that she had an infection of this long-standing cyst which led to gangrene and a purulent peritonitis. I should like Dr. Mallory to comment on that aspect of the case.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Gangrenous pelvic cyst.
Intestinal obstruction.
General peritonitis.

ANATOMIC DIAGNOSES

Gangrenous pelvic cyst.
Purulent peritonitis.

Pathologic Discussion

Dr. Tracy B. Mallory: At autopsy we found only a generalized peritonitis and the cyst which Dr. Harmer has described. It had a very broad, flat pedicle which was tied firmly down by adhesions on both sides so that it could not possibly have become twisted. The cyst itself arose from the posterior abdominal wall. There did not seem to be any possibility that any type of torsion could have resulted in circulatory blockage. It seemed to me that the only possible explanation for it was metastatic infection into the cyst. We have run across some ovarian cysts from time to time that showed obvious tuberculosis, for instance. That is one organism which we know is carried occasionally into a tumor by the blood stream, and it is certainly conceivable that other organisms could be brought and develop a purulent focus. The contents of the cyst were a mixture of hemorrhagic and purulent exudate. It apparently was a large simple cyst of the ovary, not multilocular, with epithelium destroyed by the purulent process. There was no evidence that it was an endometrial cyst. The fact that the peritonitis which apparently developed from this was also of a purulent character, not a non-septic peritonitis, I think also suggests distinctly that the primary process in the cyst was of an infectious nature. I shall be much interested in any other speculations as to what the course of events may have been. Have you any idea, Dr. McKittrick?

Dr. Leland S. McKittrick: The thought that immediately comes to mind is the possibility of a thrombosis of the vessels to some viscus. We seldom see very high white cell counts in simple inflammatory processes within the abdomen. Marked leukocytosis (25,000-40,000) suggests very strongly that the blood

supply to some abdominal viscus has been shut off. Does not the fact that the cyst was gangrenous and that there was blood in the cyst suggest the possibility that the primary process might be a thrombosis of the vessels with subsequent infection? Would you expect infection alone to give this same picture?

DR. MALLORY: Not usually.

DR. MCKITTRICK: This is an interesting point, because white cell counts above 30,000 are not common in abdominal lesions unless there is an associated thrombosis; for example, the white cell count in simple intestinal obstruction rarely goes above 15,000. When a leukocytosis of 20,000 to 30,000 is found it nearly always means that in addition to the obstruction there has been an interference with the blood supply to a section of the bowel with resulting thrombosis. This also is true in ovarian cysts in which the pedicle is twisted to such a degree that the blood supply is shut off. One also gets a high white cell count in the hemorrhagic type of acute pancreatitis or in mesenteric thrombosis not associated with an obvious mechanical interference with the vessels.

DR. HARMER: That process may have taken place secondary to infection. There may have been infection first with edema and swelling enough to cut off the circulation. There was a note that the white cell count was 15,000 the morning before admission. It was interesting that she came in that night with 34,000.

Two points I failed to mention. The patient's obstipation was explained at autopsy by the fact that the cyst was firmly pressing on the bowel. There was no evidence of metastases from the breast carcinoma.

DR. EARLE M. CHAPMAN: Pneumococcus peritonitis usually gives a high white cell count and a very high polynuclear count.

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THE *JOURNAL* AND SOCIETY MOVE TO NEW QUARTERS

THE *Journal*, after various and divers wanderings, at last finds itself in what we hope will be its permanent home under the roof of the Boston Medical Library, 8 The Fenway. The offices of the Massachusetts Medical Society have moved with it into the addition to the Library built as a result of the concerted action of Library and Society, so that finally a most happy liaison has been achieved; the harmonious alliance of these three major medical activities.

The *Journal* has been the property of the Massachusetts Medical Society for ten and one-half years. For the last six of these years the Society has experienced the convenience of sharing offices with the *Journal*, and this mutually desirable arrangement will continue.

In the one hundred and three years of its existence the *Journal* has had many temporary homes. From its beginnings in 1828 until 1831 it was published for the editors by John Cotton, at 184 Washington Street. John Cotton became the proprietor as well as the publisher of the second volume, being succeeded in 1831 by Clapp and Hull, proprietors and publishers, corner of Washington and Franklin Streets, who were in turn succeeded in 1833 by D. Clapp, Jr. and Co. In 1831 the office was removed to 334 Washington Street. In 1875 H. O. Houghton and Company became the publishers, the printing being done at the Riverside Press. Houghton Mifflin and Company took over publication in 1880, continuing until 1885 when Cupples, Upham and Company, proprietors of the Old Corner Bookstore, at 283 Washington Street, assumed its publication, changing to Cupples and Hurd, 94 Boylston Street in 1887. In 1889 the publication office was back at 283 Washington Street, with Damrell and Upham, changing to D. C. Heath and Company, 120 Boylston Street, in 1906, and W. M. Leonard at 101 Tremont Street in 1910. The next move was to 126 Massachusetts Avenue, from which offices the *Journal* came to its recent quarters at 165 Newbury Street in 1929. Let us hope that these wanderings are over!

NOMINATIONS AND APPOINTMENTS TO THE BOARD OF REGISTRATION IN MEDICINE

Now that the tumult and the shouting have died, and the Council has confirmed the second nomination by the Governor, having rejected the first, it may be well to review the situation briefly and try to evaluate at their true worth some of the factors involved. In the absence of any statement from the Council in executive session, conjecture as to the reasons for their action is out of place.

The question had been raised as to whether a graduate of a "Class C" or "unrecognized" school should or should not be appointed. In forty-seven of these United States it is a pertinent consideration. In Massachusetts, where a medical school may give as little medical education as it sees fit, within certain purely formal limits, if the State permits a school to exist, the argument carries little weight that outside of Massachusetts the graduates of the school are said to be not even admitted to examination for licensure in forty-seven states. If the State permits the school to exist, a capable graduate may properly be considered eligible for any medical office in the service of the State.

The question as to whether, in the long run, it is wise for Massachusetts to lag so far behind the other states in its formal requirements for medical education is one which must be decided on grounds of public policy. It may be said that the distinction of attainment in the science and practice of medicine which is often associated with the name of Massachusetts has been achieved, not because of, but in spite of the inferior grade of medical education permitted by the laws of the Commonwealth.

Yet formal requirements are not all-important. The formal, so-called paper requirements for admission to the medical school of Harvard University, to take as example a "recognized" school in this community, are about two years of college work, with certain formal credits in semester hours in certain fundamental sciences. The degree of doctor of medicine is conferred after four years of study, without interneship. In certain "unrecognized" schools, formerly called "Class C", the paper requirements for admission are about the same as for Harvard, and in addition a year's interneship is required before the degree is granted. So it can be said that every graduate of the "unrecognized" school has an interneship before he starts to practice. This cannot actually be said of every graduate of the Harvard Medical School, as not every graduate seeks such interneship.

But does anyone suppose that the candidates admitted to the "unrecognized" school are on the average nearly as well prepared for the study of medicine as are the matriculants of the "recognized" school, or that the former school gives substantially as thorough or extensive a preparation for the practice of medicine as does the latter? The facts are too well known to need exposition here.

Another point, concerning which misunderstanding has been shown, is the representative character of the Board. The present law recognizes factions, assumes that they will persist, and ought to be recognized, and rather clumsily seeks to have them represented. The provision that "no more than three members thereof shall be members of any one chartered medical society" prevents the appointment of more than three members of a national society, membership in which might be regarded as a distinction, as the American College of Physicians or the American College of Surgeons. This provision was apparently introduced to preserve a sort of balance of power among local factions, active at the time the law was passed.

Shall the Board be representative of groups or factions or blocs? Or shall it be representative of the highest and best interests of the medical profession, exemplified in persons of more than average intelligence, honesty, integrity, judgment and courage, who within the limits of the power conferred by statute will do their utmost to protect the public against any and every impropriety in medical practice?

WILL MASSACHUSETTS ENDORSE CHIROPRACTIC?

On Sunday afternoon, September 20, 1931 the Massachusetts Chiropractic Association held its Annual Meeting. Governor Ely and Mayor Curley were invited to attend and address the meeting. Visiting chiropractors from the several New England States and New York were scheduled to attend.

Plans were presented for a campaign to secure recognition in Massachusetts.

Dr. C. R. Johnston* of Peekskill told of treating sleeping sickness and infantile paralysis by chiropractic methods.

Since well-educated physicians, after several years of scrutiny, look upon chiropractic as an unsound method of dealing with disease and it seems to be apparent that the adherents of this cult are becoming less numerous, there is an obvious responsibility resting on the medical profession to educate the public. To this end an early campaign to offset that of the chiropractors should be organized.

*We do not find Dr. C. R. Johnston in the Directory of the American Medical Association and it may be that he is a chiropractor who uses the title "Dr."

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Holmes, George W. M.D. Tufts College Medical School 1906. Roentgenologist, Massachusetts General Hospital. Clinical Professor of Roentgenology, Harvard Medical School. His subject is: "Some Observations on the Use of Roentgen Ray in the Diagnosis of Surgical Diseases of the Chest." Page 607. Address: 265 Charles St., Boston.

Binney, Horace. M.D. Harvard University Medical School 1901. F.A.C.S. Surgeon-in-Chief, Boston City Hospital. Professor of Surgery, Tufts College Medical School. His subject is: "Acute and Traumatic Lesions of the Chest." Page 610. Address: 403 Beacon St., Boston.

Lund, Fred B. A.M., M.D. Harvard University Medical School 1892. F.A.C.S. Surgeon-in-Chief, Carney Hospital. Consulting Surgeon, Boston City Hospital. His subject is: "The Work of the Section of Surgery of the Massachusetts Medical Society and the Men Who Did It." Page 615. Address: 319 Longwood Ave., Boston.

Turner, G. Grey. M.B., M.S., F.R.C.S. (Eng.) M.D. University of Durham, 1898. F.A.C.S. Professor of Surgery in the University of Durham. Senior Surgeon, Royal Victoria Infirmary, Newcastle-upon-Tyne. Member of Council of Royal College of Surgeons of England. His subject is: "The Paget Tradition." Page 622. Address: The Hawthorns, Osborne Road, Newcastle-upon-Tyne, England.

Whittemore, Wyman. S.B., M.D. Harvard University Medical School 1905. F.A.C.S. Associate in Surgery, Harvard Medical School. Visiting Surgeon, Massachusetts General Hos-

pital. His subject is: "The Surgical Treatment of Certain Chronic Diseases of the Lungs and Pleura." Page 629. Address: 199 Beacon St., Boston.

HARRINGTON, STUART W. M.S., M.D. University of Pennsylvania School of Medicine 1913. F.A.C.S. Head of Section in Division of Surgery, The Mayo Clinic. Associate Professor of Surgery, The Mayo Foundation for Medical Education and Research, Graduate School, University. His subject is: "Summary of Surgical Treatment in Certain Thoracic Lesions." Page 632. Address: The Mayo Clinic, Rochester, Minn.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

PREVENTIVE MEDICINE*

Throughout the ages good health has been the touchstone of mankind. It has been the foundation of toasts and felicitations for centuries. More recently it has been measured in the material and economic terms of our social life, and now, in an age of advertising, it is being seized upon as an ingredient, not only of foods and drinks, but of tobacco, chewing gums, yeasts, political policies and even religions.

With such a universal appeal it is perhaps inevitable that we should encounter unsound health advice, that we should misunderstand some of the basic rules of health, or that we should misinterpret the motives of those who attempt to point the way.

Still it is felt that there is a lack of a certain kind of authentic information about good health. One objection to the dissemination of this sort of information is that there is so much speculation and so much difference of opinion about matters relating to health, that one can hardly avoid treading on the toes of somebody's pet theory. And yet, in many fields enough definite facts have accumulated to justify a series of talks on medical subjects.

This is the first of such a series of weekly health talks which will be given every Thursday at this time, by the courtesy of this broadcasting station. This series of talks has been arranged by the Massachusetts State Department of Public Health and the talks themselves have been prepared by a committee of the Massachusetts Medical Society. The subjects to be covered have been selected in such a way that the viewpoints of the medical profession may be presented in various fields of health and disease.

*WBZA radio broadcast September 3, 1931 at 5.17 P. M.

This afternoon we are going to speak briefly of the field of *preventive medicine*. Much has been said about preventive medicine during the past decade. Insurance and other organized companies have sought to impress us with the fact that life can be prolonged by the observance of certain rules of hygiene, and there is no doubt that during the past century the average duration of life has been considerably prolonged.

There is, however, nothing new about many of the means that have been utilized to control infectious diseases. The law of Moses, as detailed in the Book of Leviticus, contains effective rules for the isolation of many communicable conditions, and it was effectively used for this purpose before the Christian Era. A great improvement in the incidence of fever in ancient Rome followed the development of an improved water supply system. Quarantine against such epidemic diseases as plague and cholera practically controlled these scourges before the microscope discovered the germs that caused them. Modern sanitation is constantly diminishing our exposure to a great variety of infectious diseases. Most of these achievements have followed community rather than individual efforts, and are now routinely embodied in the practice of the science of Public Health.

Nevertheless, the individual is frequently called upon to coöperate in the observance of these public health measures. When we are asked to refrain from spitting in public places, to avoid public places when we have colds and coughs, or occasionally to restrain our dogs for ninety day periods, we are merely being asked to coöperate with the efforts of the community in the field of public health.

Then, there are the active steps which the individual should take to protect himself primarily. Such steps are represented by vaccination against smallpox and immunization against diphtheria. Practically every case of smallpox and diphtheria represents an instance in which an individual has not availed himself of the opportunity to prevent the disease, for both of these diseases are preventable by relatively simple procedures. The incidence of typhoid fever has been greatly and steadily reduced during the past quarter century, by the safeguarding of water, milk and food supplies, and by the proper disposal of sewage. Yet every year there occur, at this time, a certain number of cases of typhoid fever that are contracted during vacation periods, when people have strayed away and mingled together in more or less remote places where the usual public health precautions are not observed. In each of these cases, also, the disease is unnecessary, for the individual could be vaccinated against typhoid fever quite easily before he roamed abroad.

Quite unconsciously the individual also protects himself simply by living under the higher standards of today, for diseases of all kinds have always flourished in areas of filth, poverty and destitution.

Thus typhus fever, a disease which attacked the Elizabethans from the queen down, is now practically unknown because it is transmitted by lice, and while lousy people were the rule in the good old days, they are today, in times of peace, distinct exceptions even in our poorer quarters.

We have learned much about foods. We know something about the daily food requirements of the human body. Fortunately this mass of information is not necessary for the average person because our food habits have come to include the eating of a sufficient variety to protect us against such nutritional diseases as scurvy. Scurvy at one time incapacitated the British navy. Today it is a rare disease on land or sea. Today we more commonly err on the side of eating too much rather than too little food.

Secure as we are against such a host of former causes of disease and death, there are still a great number of maladies that are less successfully prevented and treated and which constitute a present challenge to the medical profession. The measures by which some of these may be ameliorated, and others actually prevented for the individual, if they are to be applied, call for the increasing coöperation of the individual citizen.

Such coöperation of the individual citizen is limited if he is not well informed, and it will be the purpose of these talks to provide information in the name of the Massachusetts Medical Society and the State Department of Public Health. There is behind this purpose no commercial motive or monetary impulse. It is not a great campaign. There is no great educational program to complete. The doctor, for a moment, will be a preacher. He hopes, from week to week, that some of you will listen in.

THE SEPTEMBER BULLETIN OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

Attention is called to this valuable publication with the hope that it may be more generally read. All persons who are not familiar with present-day methods of treating cancer and yet are interested in the studies under way should be familiar with the contents of this bulletin. This suggestion may apply to some physicians in active practice who have hitherto given little time to the study of the use of the x-ray and radium in dealing with cancer, and especially with the explanation of the relative value and adaptability of these agents.

It will be a revelation to many, we believe, to learn that one Boston hospital has about one-thirtieth of the radium of the world, worth more than a half a million dollars, and that the development of high voltage x-ray tubes seems to promise more positive competition with radium in certain forms of cancer. The explanation of the behavior of tissue cells under the x-ray and radium emanations will interest all who try to keep informed of the therapy of these forms of treatment.

Although cancer is one of the outstanding etiological puzzles, its treatment has made great advances and the gradual unfolding of its mysteries is fascinating.

If any of our readers have not read the *Bulletin*, we suggest sending to the National Headquarters, 25 West 43rd Street, New York City, for a copy.

THE MASSACHUSETTS STATE CANCER CLINICS

During 1930, 843 patients were admitted to Pondville and this year up to July 31 there were 533 admissions. The total attendance of all the state-aided cancer clinics in 1930 was 2,499 and through July 31 of this year the number reached 1,778. At present there are 12 cancer clinics operating in 15 cities and towns.

It is known that cancer is a race against time and requires an early diagnosis. In one type each week's delay means a loss of 4 per cent. of the chance for cure. When in doubt as to the diagnosis, patients and doctors should have expert advice.

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of thirty-six million for the week ending September 5, indicate a mortality rate of 9.8 as against a rate of 10.2 for the corresponding week of last year. The highest rate (17.5) appears for Memphis, Tenn., and the lowest (3.5) for Flint, Mich. The highest infant mortality rate (16.5) appears for Oklahoma City, Okla., and the lowest for Kansas City, Kans., Long Beach, Calif., Miami, Fla., New Haven, Conn., South Bend, Ind., Utica, N. Y., and Youngstown, Ohio, which reported no infant mortality.

The annual rate for 82 cities is 12.3 for the thirty-six weeks of 1931, as against a rate of 12.2 for the corresponding weeks of 1930.—*U. S. Division of Vital Statistics.*

PAYING YOUR SICKNESS BILLS

Sickness costs must be distributed over the group; the individual poor or middle class employed person, or head of a family, cannot budget for sickness because it is not predictable whether he will be afflicted at all, or have a $15 sickness, or a $75 sickness, or a $475 sickness, but if distributed over the group in the form of sickness insurance, $8 to $15 per person a year would pay for all the expenses of hospital care and professional fees for acute illness.

This is the opinion of Michael M. Davis, director of medical service of the Julius Rosenwald Fund, whose book, "Paying Your Sickness Bills," was published recently by the University of Chicago Press.

Group insurance is the most practicable and equitable method to insure competent professional care of the sick, and at the same time eliminate the $365,000,000 a year medical charity now given by doctors, hospitals and clinics, Mr. Davis believes. He points out that this excessive charity practice, in the form of outright free service to approximately 7 to 10 per cent. of the population, and reduced fees to another twenty per cent., results in 35 cents of the paying patient's dollar going to the doctor's "overhead". This heavy overhead is due to the doctor's expensive education (estimated at $10,000), the costly equipment he must have, and the fact that he must earn his entire livelihood in about one-third of his working time, devoting the balance to charity and to "professional advancement".

The typical commercial sickness insurance policy, costing about $60 a year, does not meet the needs, in Mr. Davis' opinion, because it covers an individual only, and not his family, and because it limits its liability to a sum that will not cover the "high cost illnesses"—and because the wage-earner hasn't $60 a year to spend on sickness.

Mr. Davis discusses various forms of industrial insurance now used in this country, and plans used in Germany, France, and other foreign countries. He also considers the extension of taxation as a means of distributing the cost of sickness, and discusses its present application to smallpox and mental diseases.

Mr. Davis is a member of the Committee on the Costs of Medical Care.

A SYMPOSIUM ON CANCER BEFORE THE AMERICAN COLLEGE OF SURGEONS

Under the chairmanship of Dr. Robert B. Greenough a Symposium on Cancer will be presented before the American College of Surgeons immediately following the annual meeting.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR AUGUST, 1931

The number of cases of communicable disease reported to the Department during August was considerably in excess of that for last year, due largely to the increased prevalence of poliomyelitis and scarlet fever.

Anterior poliomyelitis, which began to make itself felt in epidemic form in this State last month, reached during August a higher figure than ever previously recorded. The greatest concentration of this was within the Connecticut Valley, where it has steadily increased. In other sections of the State, although it has been somewhat more prevalent than normal, there was no material increase during the latter half of the month.

The reported incidence of diphtheria was low the past month, being with one exception the lowest month ever recorded. The month's record for typhoid fever was the lowest ever recorded for August of any year. The reported incidence of measles and pulmonary tuberculosis was likewise low.

The reporting of chicken pox, cerebrospinal meningitis, German measles, influenza, lobar pneumonia, scarlet fever and non-pulmonary tuberculosis was within endemic limits.

Mumps reached a higher level than ever formerly recorded for August. Whooping cough was likewise abnormally prevalent for this season of year.

Gonorrhea and syphilis were reported with normal frequency.

RARE DISEASES

Anterior poliomyelitis was reported from Adams, 1; Agawam, 2; Amesbury, 9; Amherst, 1; Andover, 1; Arlington, 5; Attleboro, 2; Barnstable, 3; Belmont, 2; Beverly, 2; Billerica, 1; Boston, 77; Braintree, 3; Bridgewater, 1; Brockton, 15; Brookline, 4; Cambridge, 7; Canton, 1; Chatham, 1; Chelmsford, 1; Chicopee, 10; Cohasset, 1; Danvers, 5; Dennis, 1; Easthampton, 4; Easton, 3; Everett, 3; Fall River, 12; Falmouth, 2; Fitchburg, 4; Framingham, 1; Gardner, 4; Georgetown, 1; Grafton, 1; Granville, 1; Great Barrington, 2; Greenfield, 15; Greenwich, 1; Hatfield, 1; Haverhill, 3; Holden, 1; Holyoke, 34; Hull, 2; Lakeville, 1; Lee, 1; Leicester, 4; Leominster, 5; Lexington, 1; Longmeadow, 2; Ludlow, 2; Lynn, 3; Lynnfield, 1; Malden, 6; Marion, 1; Medford, 3; Melrose, 1; Methuen, 1; Middleboro, 4; Millbury, 1; Montague, 2; Nantucket, 2; New Bedford, 9; New Marlboro, 1; Newton, 3; Northampton, 11; Northbridge, 1; North Adams, 3; North Attleboro, 1; Norwood, 2; Oxford, 2; Peabody, 1; Pelham, 1; Pittsfield, 15; Quincy, 12; Reading, 3; Revere, 3; Rochester, 1; Rockland, 4; Salem, 2; Sandwich, 1; Saugus, 1; Scituate, 1; Sheffield, 1; Somerville, 3; South Hadley, 2; Springfield, 19; Stoughton, 2; Templeton, 2; Uxbridge, 5; Waltham, 5; Wareham, 7; Watertown, 3; Wellesley, 3; Westfield, 3; Weston, 1; Weymouth, 2; Whitman, 3; Winthrop, 1; Worcester, 5; total, 437.

Anthrax was reported from Haverhill, 1; Lawrence, 1; total, 2.

Dysentery was reported from Boston, 1; Malden, 1; Worcester, 1; total, 3.

Encephalitis was reported from Boston, 1; Dartmouth, 1; Newton, 1; Quincy, 1; total, 4.

Epidemic cerebrospinal meningitis was reported from Boston, 4; Fall River, 1; Lawrence, 1; Provincetown, 1; total, 7.

Hookworm was reported from Cambridge, 1; total, 1.

Pellagra was reported from Fall River, 1; New Bedford, 1; Tewksbury, 1; total, 3.

Septic sore throat was reported from Arlington, 2; Boston, 9; Cambridge, 1; Clinton, 1; Danvers, 1; Haverhill, 2; Marion, 3; New Bedford, 1; Northfield, 2; Revere, 1; Sharon, 1; Woburn, 1; total, 25.

Trachoma was reported from Boston, 1; Chelsea, 1; Lawrence, 1; total, 3.

Trichinosis was reported from Boston, 1; total, 1.

Undulant fever was reported from Gloucester, 1; Lancaster, 1; total, 2.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES

	Cases in Entire Pop.				Case Rates per 100,000 Pop.		
	Aug. 1931	Aug. 1930	Proso. Index*	Epi. Index†	Aug. 1931	Aug. 1930	Expected Rates‡
All Causes	4525	3590	—	—	105.8	84.4	—
Ant. Polio.	437	104	75	5.8	10.2	2.4	1.8
Diphtheria	132	181	199	.7	3.1	4.3	4.7
Ep. C. S. Men.	7	10	4	1.8	.2	.2	.1
Measles	179	227	353	.5	4.2	5.3	8.3
Pneu. Lobar	73	80	68	1.1	1.7	1.9	1.6
Sc. Fever	290	192	233	1.2	6.8	4.5	5.4
Tbc. Pul.	318	317	343	.9	7.4	7.4	8.0
Typhoid Fever	35	62	34	1.0	.8	1.5	.8
Whoop. Cough	557	551	301	1.8	13.0	12.9	7.0
Chicken Pox	112	70	—	—	2.6	1.6	—
German Measles	38	22	—	—	.9	.5	—
Gonorrhea	679	630	—	—	15.9	14.8	—
Influenza	8	4	—	—	.2	.1	—
Mumps	185	144	—	—	4.3	3.4	—
Syphilis	398	289	—	—	9.3	6.8	—
Tbc. O. Forms	42	37	—	—	1.0	.9	—

*This index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

†This ratio expresses how prevalent the disease is compared with the index mentioned above: 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The method used to determine the indices is described in the August 18, 1927 issue of the *Boston Medical and Surgical Journal*.

‡Calculated from the Prosodemic Index.

CORRESPONDENCE

ADDITIONAL INFORMATION WITH REFERENCE TO THE GENERAL HOSPITALS IN BOSTON

September 10, 1931.

The *New England Journal of Medicine*,

In your list of the general hospitals in Boston for 1931, you have put no asterisk after the Emerson or Faulkner Hospitals. Perhaps, in compiling your list, you may have used the book of the American College of Surgeons for 1931 but have forgotten that Jamaica Plain is a part of Boston. They are both listed under Jamaica Plain. I don't know much about the Emerson but the Faulkner Hospital has been approved by the College of Surgeons ever since they made out their list. It is rather unfortunate that they should be left out on their asterisk this year when they are going out for a drive for more money and would rather like to stress the point that they have always been approved by the College of Surgeons.

Very truly yours,

(Signed) F. G. BALCH, M.D.

EDITORIAL NOTE: A few inaccuracies have been found in the list of General Hospitals in Boston as submitted to the *Journal* for publication. The Faulkner Hospital in Jamaica Plain and the Emerson Hospital in Forest Hills have been found to have been approved by the American College of Surgeons. In the list of General Hospitals in Brookline, as already announced in a correction in the *Journal*, the Trumbull Hospital has 46 beds instead of 24.

Upon the receipt of requests, the *Journal* will furnish slips with these corrections which may be attached to the appropriate page in the issue of July 16, 1931.

A PROTEST AGAINST PUBLIC HEALTH ACTIVITIES

September 12, 1931.

Mr. Editor:

A patient of mine from Roslindale came into my office today to have her two children vaccinated. She said that she had been to the Baby Hygiene Clinic in Roslindale, but that she could not get service on account of the very large number of children, who were in line for vaccination.

I asked her if she knew that only those who could not afford a physician were supposed to have any medical service in these clinics. She told me that I was very much mistaken, that the City had taken over that work and that city health nurses were inviting everybody to come.

I presume our paternal Health Department is circulating propaganda that the local doctors can't even vaccinate properly, as was done about the Schick test and the toxin-antitoxin treatment.

I beg to contrast the generous treatment accorded the doctors in New York City with the treatment physicians receive from the Boston Health Department.

Every child in New York City that could afford to have a diphtheria immunization was singled out and sent to its family physician. Those that were shown to be unable to pay for such immunization were treated by doctors from the New York Health Department.

A circular was sent by Dr. Rubin to the doctors telling them that they could and should give the toxin-antitoxin treatment, but no word to this effect was sent to the parents of the children that Boston physicians could give this treatment, thanks to the propaganda of the Boston Board of Health, and their utter disregard for the right of medical practitioners, almost no children have appeared to the local physicians for this treatment.

A few weeks ago an article appeared in the *Boston Sunday American* relative to the immunization of hay fever and asthma. The writer, a prominent physician, claimed that the treatment was discovered at the Brigham Hospital, which was news to me. I would not criticize that claim, but the doctor elaborates on the great work that was done at this hospital, and damns the medical practitioner with faint praise, claiming that he didn't do the tests but could give the dose, which of course was an invitation to those afflicted with hay fever or asthma to come to the Brigham Hospital.

With the approval of our leaders, the field of the general practitioner is becoming narrowed so that soon we will be compelled to subsist on the fruits of night and emergency calls as these philanthropic people don't like night work.

I just wish to voice my protest, through the *Journal*, on the acute encroachment on our work by the Boston Health Department and the various hospitals and clinics in Boston.

I have found it useless to appeal to the officers of the Society or the Council to do anything that would aid the general practitioner.

Yours truly,

CHARLES MALONE, M.D.

46 St. John Street,
Jamaica Plain, Mass.

QUESTIONS OF DIAGNOSIS

Editor of the Journal,

In your issue of August 27 I raised some questions as to what was what in Infantile Paralysis and ventured to suggest that it was something of a "mélangé" and that in its pathological anatomy, poliomyelitis seemed to have disappeared. I had hoped that some young tyro would have appeared to enlighten my ignorance, but thus far I see him not. I was, however, much pleased today to get a letter from the Chairman of the Health Department in a large Massachusetts city—a man of reputation and of long and broad experience, in which communication he says my squib brought "joy" to his heart and expresses his entire disbelief in the immunity-communicability-carrier myth; also intimating that he might express himself before God and men, which I trust he will do.

We are supposed to have been passing through an epidemic of a highly contagious malady—cause undetected, pathology undetermined, pathological anatomy decidedly mixed. Week before last we had 1000 cases reported from the whole country with about every state represented. How logical is it that, with foci at all points, with a next to nil quarantine, with the victims largely children whose contact is of the most promiscuous, how logical I repeat is it, to call such a disease contagious?

Or here in Hartford 130 cases in all—but in Middletown 20 miles away with 40,000 inhabitants: no cases as yet reported.

Clinically, it seems to me there is much at which to look askance. I have not seen a so-called case myself, but have talked with a children's specialist who thinks he has had two. Asking him on what the diagnosis was built, he said: "Sudden illness with temperature 103° and 101°, stiffness of back and pain on sitting up. Then the cell count. I submit that while this diagnosis might be satisfactory from a laboratory point of view, it doesn't hold water clinically or logically.

Each child was well and kept from activity with the utmost difficulty; the one was well in two days, the other in three. No paralysis developed. But, you say, this was a mere infection, aborted. That you can't maintain because there was rigidity of the muscles of the back and pain on sitting up. As I said in my previous letter, these are meningeal symptoms and have nothing to do with an anterior poliomyelitis pure and simple and in its incipiency. But waiving the question of the source, if one really had such a complex, something was going on somewhere in the cord or its coverings. And who is there to believe that with a disturbance of so important a structure as the cord, there could be complete recovery in two days?

But as to the genuineness of these observations on the back, can there be any question? Those deeply trained clinicians of health boards have been flaunting this before the public for weeks. Every mother is looking for it before the doctor's visit. After she has plied the child with the question "Does it hurt you?" etc., filled the child with suggestion worked her up hysterically etc., there is a fine state of things for reliable testimony from a little scared midget. I think it would take a most carefully trained medical mind to ascertain the truth as to hurt or rigidity! And after many observations Boards of Health have even told us to reckon in cases of simple fever with vomiting. In that they are vying with the extreme theorists in tuberculosis who wish to appropriate the same case to themselves. Since this epidemic began I saw a child of six with vomiting and a temperature of 103°—perfectly well in 2 days—but the interesting point is she repeated the performance two weeks later with temperature 101°, of which the the mother took no notice. Are we not to be left with any febrile episodes in children, for which we cannot account and to which we attach no name, or, between experts of the most refined diagnostic acumen in syphilis or tuberculosis, psychiatry, or boards of health theorists and laboratorians, is one half the world to be busied in taking care of the other half?

Hartford reports 130 cases of which eighty per cent. had no paralysis. What did they have? They certainly had laboratory and theory!

SAMUEL DELANO, M.D.

New Britain, Conn.
September 16, 1931.

RECENT DEATH

PARSONS—DR. AZARIAH WORTHINGTON PARSONS, who first joined the Massachusetts Medical Society in 1880, the year of his graduation from Harvard Medical School, died at his home in Oakwood, Texas, September 4, 1931, of chronic myocarditis.

He was born in Worthington, Massachusetts, March 31, 1857. He practiced internal medicine in Mexico for fifteen years. In the nineties he was United States pension examining surgeon in Mexico City and in 1897 he was graduated from the National School of Medicine of the City of Mexico. Later he practised in Tampico and moved to Texas in 1917. In 1929 his name was placed on the retired list of the Massachusetts Medical Society because of failing health. Dr. Parsons was a man of great charm of manner and a brilliant conversationalist; he kept up an interest in his friends in the East through the official organ of the Massachusetts Medical Society. He is survived by his widow, Mrs. Bessie C. Parsons.

NEWS ITEMS

JUSTICE WAITE'S DECISION SUSTAINED BY THE SUPREME COURT IN THE GEORGE J. OTT CASE—We are informed that the decision in the George J. Ott case will present matters of interest which cannot at present be commented on further than to say that the newspapers report that the Supreme Court has endorsed the decision of Justice Waite.

GOVERNOR ELY REAPPOINTS MRS. CLAIRE HUBBARD GURNEY—The term of Mrs. Claire Hubbard Gurney as a member of the Board of Trustees of the Foxboro State Hospital having expired, Governor Ely has reappointed her.

AN HONOR TO DR. ALICE HAMILTON—On Tuesday, September 15 inst., a dinner in honor of Dr. Alice Hamilton was served in the Windsor Hotel, Montreal, by the American Public Health Association. Eminent physicians and scientists sent letters of felicitation to this noted devotee to the study of industrial medicine.

Professor C.-E. A. Winslow of Yale University gave a biological sketch of Dr. Hamilton emphasizing the great contribution which she had made to her specialty.

In replying to the compliments extended to her, Dr. Hamilton gave a charming address in which, among many valuable suggestions, the hope was expressed that State Insurance for all sickness would be recognized as a solution of one of the problems confronting labor in this country.

NOTICES

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following-named open competitive examination:

Senior Medical Technician (Bacteriology)
For U. S. Veterans' Administration Hospital, Tuskegee, Ala., Only

Applications for the position of senior medical technician (bacteriology) must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than October 13, 1931.

The examination is to fill vacancies in the United States Veterans' Administration Hospital, Tuskegee, Ala.

The United States Veterans' Administration Hospital at Tuskegee, Ala., is for colored patients only, and it is the policy to select colored eligibles for appointment when available. As the Commission has had difficulty in securing a sufficient number of eligibles for this hospital, qualified colored persons are urged to apply.

The entrance salary is $2,000 a year.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Certain specified education and experience required.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city or from the United States Civil Service Commission, Washington, D. C.

RADIO HEALTH MESSAGES

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

(Courtesy WBZA.) Thursdays at 5:17 P. M.

October
1 Gall Stones
8 What a Health Examination Means
15 Sunlight and Ultra-violet Rays
22 Hospitals—Then and Now
29 What the Public Should Know of Diabetes

November
5 High Blood Pressure
12 The Care of Pulmonary Tuberculosis
19 Accidents in the Home
26 Fatigue as a Symptom of Disease

December
3 Overweight—Cause and Prevention
10 Can We Prolong Life?
17 Pasteurized or Raw Milk
24 Public Health in the Coming Year
31 Mental Health

State House Broadcast

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

Radio Health Forum

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

NOTICE OF MEETING

THE NEW ENGLAND DERMATOLOGICAL SOCIETY

The regular quarterly meeting of the New England Dermatological Society will be held on Wednesday, October 14. There will be a clinical meeting at the Skin Out-Patient Department of the Massachusetts General Hospital at three P. M.

Wm. P. Boardman, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

October 5, 6, 7, 8—American Congress of Physical Therapy. See notice on page 272, issue of July 30.

October 8-9—Vermont State Medical Society. See page 493, issue of September 3.

October 12-16—Announcement of the Clinical Congress of the American College of Surgeons. See page 1175, issue of May 28.

October 12-16—Special Course in Anesthesia. See page 555, issue of September 10.

October 14—The New England Dermatological Society. See notice above.

October 19-23—International Assembly of the Interstate Postgraduate Medical Association of North America. See page 1125, issue of May 21, and page 557, issue of September 10.

October 19-30—Graduate Fortnight of the New York Academy of Medicine. See page 1230 issue of June 4, and page 465, issue of August 27

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

Autumn 1931—Spring 1932—International Medical Postgraduate Courses in Berlin. See page 468, issue of August 27.

DISTRICT MEDICAL SOCIETIES

Franklin District Medical Society

Meetings will be held on the second Tuesday of November, January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Worcester District Medical Society

Wednesday evening, October 14, 1931 — Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Recent Advances in the Etiology and Treatment of Cancer, by Dr. Clarence C. Little, Bar Harbor, Me.

Wednesday evening, November 11, 1931 — Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Bone Lesions of Congenital Syphilis, by Dr. Stafford McLean, Clinical Professor, Diseases of Children, Columbia University College of Physicians and Surgeons, New York City.

Wednesday evening, December 9, 1931 — Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Subject in the field of Eye, Ear, Nose and Throat to be announced later.

Wednesday evening, January 13, 1932 — Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932 — Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932 — Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932 — Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932 — Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

International Studies on the Relation Between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease conducted for The Milbank Memorial Fund. By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. Volume Two. Belgium, France, Italy, Jugoslavia, Hungary, Poland, Czecho-Slovakia. London: George Allen & Unwin, Ltd. Baltimore: Williams & Wilkins Co. Price $4.00.

As this group of studies will be reviewed at some length when all the volumes have appeared, the publication of the second volume requires but little comment. The countries covered are Belgium, France, Italy, Jugoslavia, Hungary, Poland and Czecho-Slovakia. Each country is treated in a manner similar to that employed in the earlier studies and as before, there is presented a large amount of material which may be of great value to the student of the problems set forth.

In the Foreword, which is almost the same for the two volumes, one notes in the second volume the introduction of the word "difficult", in this sentence: "It was felt that studies of what was being done elsewhere in public health might be valuable in indicating not only solutions of difficult problems." This is perhaps an intimation that the task undertaken by the Milbank Memorial Fund has been even greater than it seemed at first.

There are a few points in the mechanical make-up of the studies that may be criticized. The order and arrangement of the topics under each country should be more nearly uniform. For example, in considering venereal disease, the following headings occur in different countries: "Treatment of Venereal Disease," "Control of Venereal Disease," "Anti-Venereal Work," "Public Medical Work Against Venereal Disease," "Venereal Disease Work." Nothing is said in the table of contents concerning venereal disease in Jugoslavia, but in the text there are two references. Referring to the index one finds that this important part of a book of reference is inadequate. Under venereal disease there is one reference to Jugoslavia concerning syphilis but no reference to the venereal disease clinics noted on another page.

These minor defects are certain to detract from the value of the work as a book of reference. The text shows the same high quality of intelligent criticism and evaluation that is shown in the first volume.

Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus. By LOUIS A. BUIE. Published by W. B. Saunders Co. Price $3.50.

This concise monograph, coming, as it does, from the head of the Section in Proctology at the Mayo Clinic, commands careful attention. It is a book of 178 pages, well illustrated.

Part I contains 4 chapters dealing with equipment, technique of proctoscopy, and diagnostic fundamentals. Worthy of particular mention in this review are several instruments. The author's proctoscopic table handles a patient comfortably and permits of easy conversion into the equivalent of a knee-chest position. The Buie proctoscope is well constructed, possessing the feature of distal lighting with complete protecton of the bulb from possible trauma. The author uses a small anal canal irrigator with multiple perforations. It is about 3/16 of an inch in diameter and about 1½ inches long. The Smith retracting anoscope for operative work is very useful.

Part II, consisting of 11 chapters, is devoted to the consideration of hemorrhoids. Dr. Buie feels that infection acquired through the mucous membrane is the chief factor in the development of hemorrhoids. He discards the various mechanical theories. Detailed statistics on 1000 cases are quoted. Partial sacral block anesthesia is favored above any other type for all rectal surgery. It has been used since 1923 without mishap and has given satisfaction. Dr. Buie describes the hemorrhoid operation which he uses—an excision with suture procedure—but does not uphold it as the only satisfactory operation. He feels that careful pre-operative and postoperative care together with a well-performed operation of any of several types will give a good end result.

Treatment by injection, in properly selected cases, is given the author's approval. He finds Quinine and Urea Hydrochloride (5% solution) the best agent, and prefers to carry out treatment under anesthesia.

Anal pruritus is discussed in Part III. Dr. Buie divides the cases into the indirect type (itching caused by systemic disorders or causative factors at a distance from this region) and the direct type (due to local skin disease). The local pathologic changes are discussed and illustrated. He favors alcohol injection treatment, using 40% ethyl alcohol, and he expects some degree of skin slough in about half the cases. Since 1925 he has used this method, and claims permanent cure in 84% of cases.

This book is well written and can be read with profit.

Human Heredity. By ERWIN BAUR, EUGEN FISCHER and FRITZ LENZ. Translated by Eden and Cedar Paul. New York: The Macmillan Company, 1931. 734 pages. Price, $8.00.

This is an English translation of the third edition of a well-known German book on heredity. The three authors are all well established in their departments. The first section, by Dr. Baur, on the general theory of heredity, exhibits few changes from the second edition of this book. The subject has been definitely stabilized and needs little revision. To the second section, by Dr. Fischer, on the bodily structure and types of constitution of importance to human heredity, there have been a few additions, principally in the carefully chosen illustrations. The last and most important section, from the medical point of view, is that written by Dr. Fritz Lenz, Professor of Racial Hygiene at the University of Munich. In this section there have been considerable additions, especially in the reproduction of many new genealogical trees, illustrating the hereditary characteristics as noted in various diseases. There are long and excellent chapters on diseases of the eye, ear, and skin, as well as those of the nervous system. Also Dr. Lenz explains the hereditary factors in pathological conditions such as malignant tumors and infectious diseases.

The book can be highly recommended and the English translation of this standard work is a welcome addition to the literature.

BOOKS RECEIVED FOR REVIEW

Demonstrations of Physical Signs in Clinical Surgery by Hamilton Bailey. Third Edition. Published by William Wood and Company. 277 Pages. Price $6.50.

Dynamic Retinoscopy by Margaret Dobson. Published by Humphrey Milford, Oxford University Press. 55 Pages. Price $2.50.

Lane Lectures on Pharmacology by Walther Straub. Stanford University Publications, University Series. Medical Sciences, Volume III, Number 1. Published by Stanford University Press. 87 Pages. Price $1.00 (Paper); $1.50 (Cloth).

A Manual of Clinical Laboratory Methods by Clyde Lottridge Cummer. Third Edition. Published by Lea & Febiger. 585 Pages. Price $6.75.

Nutrition and Physical Fitness by L. Jean Bogert. Published by W. B. Saunders Company. 540 Pages. Price $3.00.

The Practice of Medicine by A. A. Stevens. Third Edition. Published by W. B. Saunders Company. 1150 Pages. Price $8.00.

The Surgical Clinics of North America. August, 1931, Volume 11, Number 4, Mayo Clinic Number. Published by W. B. Saunders Company. 211 Pages.

Gonorrhea in the Male and Female by P. S. Pelouze. Second Edition. Published by W. B. Saunders Company. 440 Pages. Price $5.50.

A Text-Book of General Bacteriology by Edwin O. Jordan. Tenth Edition. Published by W. B. Saunders Company. 819 Pages. Price $6.00.

Tables of Food Values by Alice V. Bradley. Published by The Manual Arts Press. 128 Pages. Price $2.00.

Yellow Fever by Henry Rose Carter. Edited by Laura Armistead Carter and Wade Hampton Frost. Published by The Williams & Wilkins Company. 308 Pages. Price $5.00.

Die vierfache Muskelinnervation by Ken Kuré. Published by Urban & Schwarzenberg. 320 Pages.

The Modern Therapeutics of Internal Diseases by A. P. Cawadias. Published by William Wood and Company. 147 Pages. Price $3.75.